# ADDITIONS, CHANGES AND CORRECTIONS

## TO KEEP YOUR PHOTOFACT FOLDERS UP TO THE MINUTE

WARWICK - CLARION C104

Page 1 - Identification should be CLARION C104, C105.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

ECHOPHONE - MODEL EC-113

Page 3 - Item 49 JENSEN Part Listing should be ST-105* Mod. P5-X or ST-113* Mod. P4-X

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

ECHOPHONE - MODEL EC-600

Page 2 - Item 30 THORDARSON Part Listing should be T-22S74.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

E-L (ELECTRONIC LABS.) - MODEL 2701

Page 2 - Items 7A,B CORNELL-DUBILIER Part Listing should be BRL44015.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

ELCAR - MODEL 602

Page 2 - Item 33 STANCOR Part Listing should be C-2303†. Add Installation Note - †Fabricate mounting bracket to mount replacement unit in horizontal position.

Page 4 - On the schematic diagram-lead coming from Pin 6 of 12SK7GT IF Tube should be connected to low side of leads from primary of IF Transformers. Also, on Band Switch the Short Wave Arm should not be shown making contact.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

EMERSON - MODEL 510, 510A

Page 3 - Item 35 MEISSNER Part Listing should be 16-6667.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

FADA - MODEL 652 SERIES

Page 2 - Items 7A,B AEROVOX Part Listing should be PRS150-40-40, Item 7C AEROVOX Part Listing should be PRS150-20

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

FARNSWORTH - MODELS ET-064, ET-065, ET-066

Page 2 - Items 7A,B SOLAR Part Listing should be M-2X30-150.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

GAROD - MODEL 6AU-1

Page 1 - Right hand knob should bear identification Tuning Control instead of Tone Control.

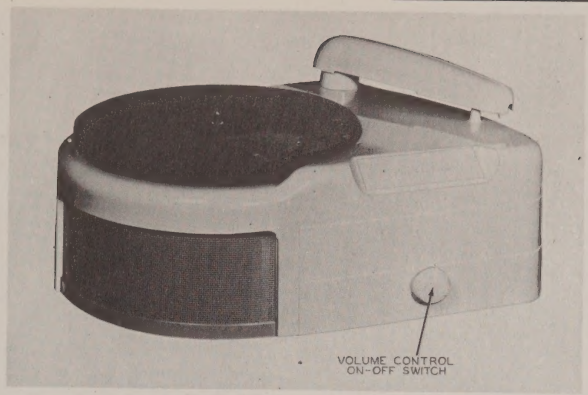
Page 4 - On schematic diagram-Converter Tube should be 12SA7. Input section of filter capacitor should be Item Number 7A instead of A1.

CUT ON THIS LINE—MOISTEN EDGE—AND APPLY TO PROPER FOLDER

GENERAL ELECTRIC - MODELS 219, 220, 221

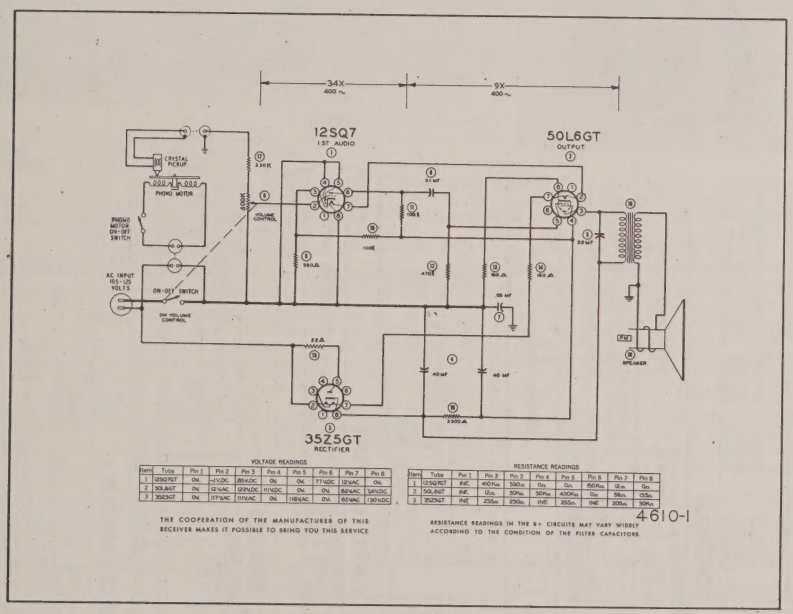
Page 2 - Item 7A,B,C AEROVOX Part Listing should be AEF888D.

Page 3 - Item 47 STANCOR Part Listing should be A-3876†. THORDARSON Part Listing should be T-22S45†. Add Installation Note- †Drill new mounting holes.




AIRLINE MODEL 64BR-917A

| | |
|---|---|
| TRADE NAME | Airline Model 64BR-917A |
| MANUFACTURER | Montgomery Ward and Co., 619 Chicago Ave., Chicago, Illinois |
| TYPE SET | AC Operated Amplifier and Record Player |
| TUBES (THREE) | Types, 12SQ7GT 1st AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC RATING - .240 Amp. @ 117V AC |




1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | 1st Audio | 12SQ7GT | 12SQ7GT | 8Q | |
| 2 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 3 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRLINE PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 4A | 40 | 150 | BEA-8C-11376 | DY-2x40-150 | EL-25 | AF88D | UP8BJ34 | FP214 | ■ Filter |
| B | 40 | 150 | | | | | | | ▲ " |
| 5 | .05 | 400 | BEC-8D-10613 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Output Plate Bypass |
| 6 | .01 | 400 | BEC-8D-10761 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 7 | .05 | 400 | BEC-8D-10613 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Isolation |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 8A | 500KΩ | 1 | BEA-10A-11332 | MK401 | D13-133 | AM-60-Z | Volume Control |
| B | Shaft | | | Not Req. | E | KSS-3 | Attach to 8A per instructions |
| C | Switch | | Not Req. | M26 | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 9 | 560Ω | ½ | BEC-9B1-59 | BTS-560 | Grn.-Blue-Br. 1st AF Cathode |
| 10 | 100KΩ | ½ | BEC-9B1-86 | BTS-100K | Br.-Blk.-Yl. Bleeder |
| 11 | 100KΩ | ½ | BEC-9B1-25 | BTS-100K | Br.-Blk.-Yl. 1st AF Plate Load |
| 12 | 470KΩ | ½ | BEC-9B1-29 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 13 | 150Ω | ½ | BEC-9B1-8 | BW-½-150 | Br.-Grn.-Br. Output Cathode Line Dropping |
| 14 | 160Ω | 5 | BEA-9C-11355 | AB-150 | |
| 15 | 22Ω | ½ | BEC-9B1-3 | BW-½-22 | Red-Red-Blk. Rectifier Ballast |
| 16 | 3300Ω | ½ | BEC-9B1-16 | BTS-3300 | Or.-Or.-Red Filter |
| 17 | 330KΩ | ½ | BEC-9B1-28 | BTS-330K | Or.-Or.-Yl. Series Phono. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: AIRLINE PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 18 | 2300Ω | 3.0Ω | 190Ω | .7Ω | BEB-12C-10074-3 | A-3876 | T22S45 | | |

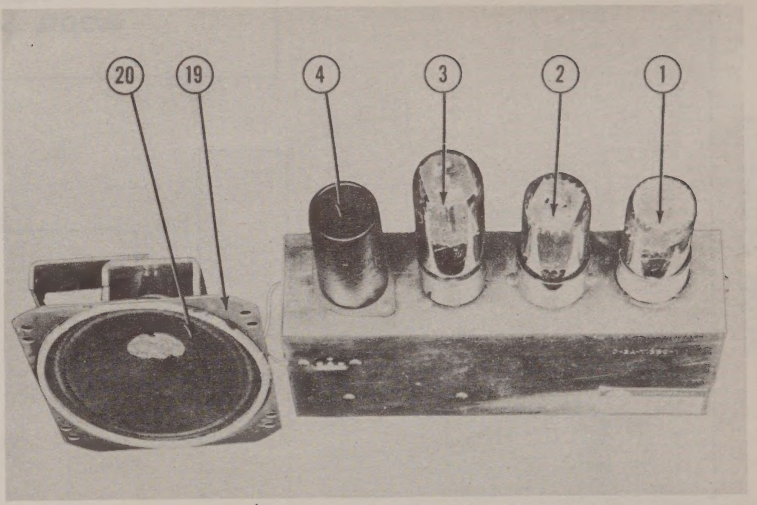
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: AIRLINE PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | | | |
| 19A | PM | 3Ω | BEB-18A-11219 | | | |
| B | | | BEB-18A-12180* | | | *Alternate speaker |
| | CONE DIA. | VC DIA. | | | | |
| 20 | 4"x6" | ½" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |

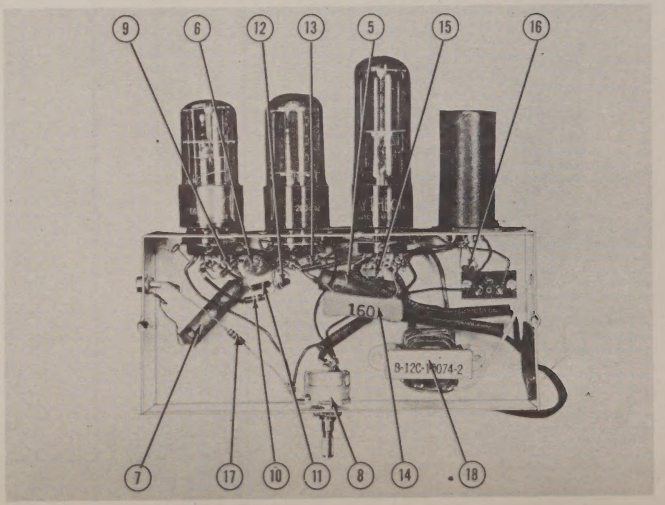
## MISCELLANEOUS

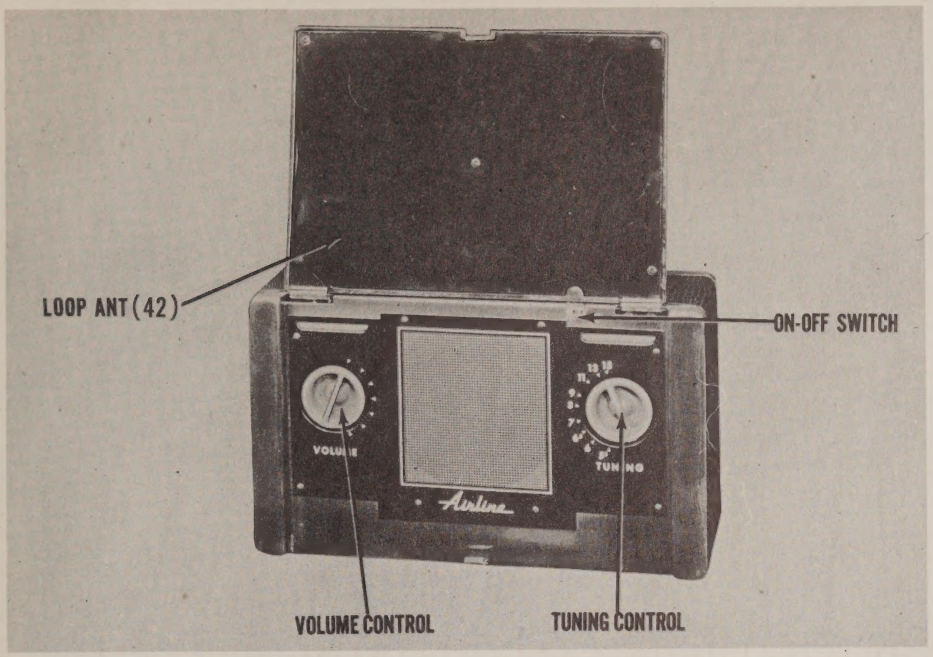
| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| | Phono Motor Sw. | BEA-20A-11482 | |
| | Crystal Cart. | BE8K-11885 | American Mic. Type B-127 |
| | Phono Motor & Turntable Assby. | BEC-201-11406-3 | |
| | Cabinet | BE5C-10267-9 | |
| | Knob | BEA-5B-11211 | |

## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW






AIRLINE MODEL 64WG-1050A

| | |
|---|---|
| TRADE NAME | Airline, Model 64WG-1050A |
| MANUFACTURER | Montgomery Ward and Co., 619 Chicago Ave., Chicago 7, Illinois |
| TYPE SET | Three Power Portable AC-DC Battery Superheterodyne - Self Contained Loop Antenna |
| TUBES (FOUR) | Types, 1R5 Converter, 1T4 IF Amp., 1S5 2nd Det.-AVC-1AF, 3S4 Power Output |
| POWER SUPPLY | 105-125 Volts AC-DC or 1.5 Volts "A" Battery & 60 Volts "B" Battery (Ward Battery Pack No. 62-32 or Equiv.). |
| RATING | .130 Amp. @ 117V AC or .270 Amp. @ 1.55 V "A" & .0107 Amp. @ 65 V "B". |
| TUNING RANGE—BROADCAST | 540-1600KC |

ALIGNMENT INSTRUCTIONS

Remove chassis from case and temporarily solder a 50K ohm resistor across the loop leads. Use battery power for alignment whenever possible. If ac power is used, use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #6 (signal grid) of 1R5. Low side to chassis. | 455KC | High freq. end (Variable fully open) | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If a-c power is used without isolation trans., reduce dummy ant. to 200 MMF. to reduce hum modulation. |
| .1 MFD. | High side to door hinge above tuning control. Low side to chassis. | 1610KC | " | " | A5 | Reinstall chassis in case. Remove 50K resistor and solder loop leads to hinges. Adjust A5 for maximum output. |
| .1 MFD. | " | 1500KC | Tune for maximum output. | " | | Set tuning knob at 1500KC. |
| | Loop | 1400KC | " | " | A6 | Connect output of signal generator to a few turns of wire and place approx. two feet from receiver. Adjust for maximum output. |
| | " | 600KC | " | " | A7 | Rock variable and adjust for maximum output. |
| | " | 1400KC | " | " | A6 | Adjust for maximum output. |



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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA AIRLINE PART No. | REPLACEMENT DATA STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1R5 | 1R5 | 7AT | |
| 2 | IF Amp. | 1T4 | 1T4 | 6AR | |
| 3 | Det.-AVC-AF | 1S5 | 1S5 | 6AU | |
| 4 | Pwr. Output | 3S4 | 3S4 | 7BA | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA AIRLINE PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 5A | 40 | 150 | 45X350 | | | | | | Filter - Red |
| B | 40 | 150 | | | | | | | " - Green |
| C | 200 | 12 | | | | | | | Filament Bypass-Yel. |
| 6 | .01 | 200 | B66103 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Line Filter |
| 7 | .1 | 400 | D67104 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Line Isolation |
| 8 | .005 | 200 | B66502 | S-6-005 | TC-25 | 484-005 | DT6D5 | TP408 | Output Plate Bypass |
| 9 | .001 | 200 | B67102 | S-6-001 | TC-21 | 484-001 | DT6D1 | TP404 | Audio Coupling |
| 10 | .05 | 200 | B66503 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Audio Screen Bypass |
| 11 | .001 | 120 | 46X334 | S-6-001 | TC-21 | 484-001 | DT6D1 | TP404 | Audio Coupling |
| 12 | .1 | 120 | 46X350 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Filament Bypass |
| 13 | .05 | 200 | B66503 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP428 | Screen Bypass |
| 14 | .05 | 200 | B66503 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 15 | .1 | 200 | B68104 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Filament Bypass |
| 16 | 47 | | 47X495 | | | | | | Audio Plate Bypass Cer. |
| 17 | 47 | | 47X495 | | | | | | IF Bypass Vol. Cont. Cer. |
| 18 | 47 | | 47X495 | | | | | | IF Bypass Diode Cer. |
| 19 | 47 | | 47X495 | | | | | | Osc. Grid Capacitor Cer. |
| 20 | 180 | 500 | 47X486 | | | | | | Fixed Trimmer |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA AIRLINE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 21 | 1 Meg. | 1 | 36X305 | | | | Volume Control |

## RESISTORS

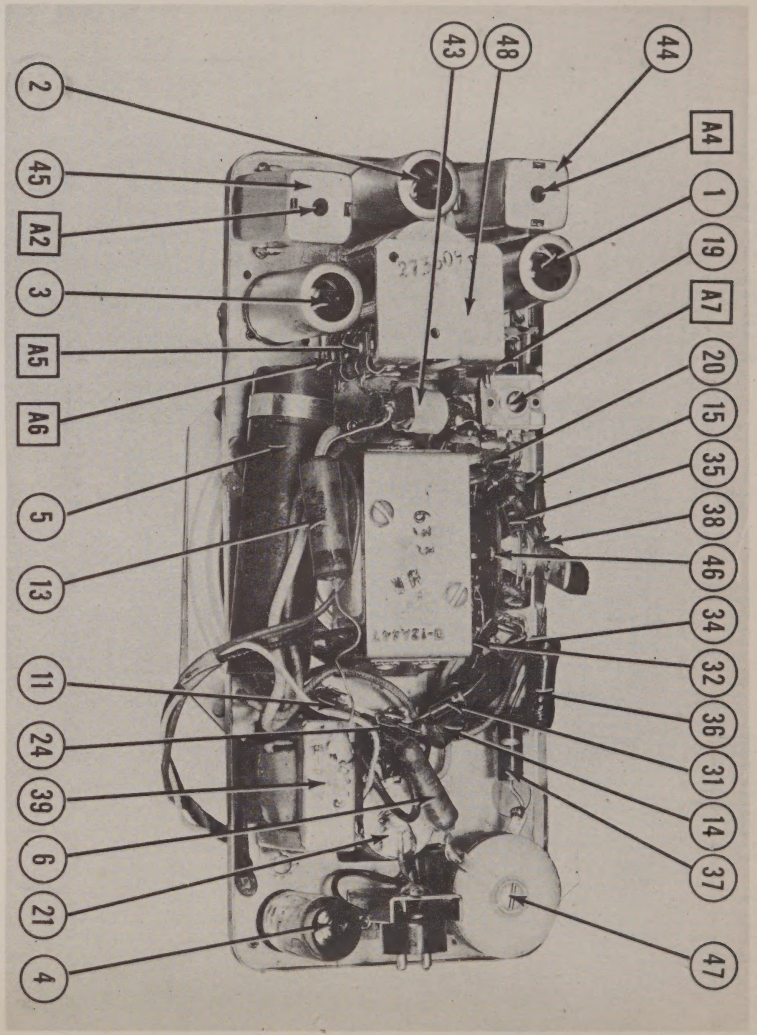
| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA AIRLINE PART No. | REPLACEMENT DATA IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 22 | 47KΩ | ½ | B84473 | BTS-47K | Yl.-Vi.-Or. Oscillator Grid |
| 23 | 1800Ω | ½ | B84182 | BTS-1800 | Br.-Gray-Red Voltage Dropping |
| 24 | 2.2 Meg. | ½ | B85225 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 25 | 47KΩ | ½ | B84473 | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 26 | 10 Meg. | ½ | B85106 | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 27 | 3.9 Meg. | ½ | B84395 | BTS-3.9Meg. | Or.-White-Grn. " " Screen Dropping |
| 28 | 1 Meg. | ½ | B85105 | BTS-1 Meg. | Br.-Blk.-Grn. " " Plate Load |
| 29 | 2.2 Meg. | ½ | B85225 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 30 | 680Ω | ½ | B84681 | BTS-680 | blue-Gray-Br. Bias |
| 31 | 3.3 Meg. | ½ | B85335 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 32 | 1500Ω | ½ | B84152 | BTS-1500 | Br.-Grn.-Red Filament String |
| 33 | 220Ω | ½ | B84221 | BW-½-220 | Red-Red-Br. " " |
| 34 | 120Ω | ½ | B84121 | BW-½-120 | Br.-Red-Br. " " |
| 35 | 270Ω | ½ | B84271 | BW-½-270 | Red-Vi.-Br. " " |
| 36 | 1750Ω | 4 | 43X107 | ARA-2000 † | Voltage Dropping |
| 37 | 150Ω | 2 | B84151 | BW-2-150 | Br.-Grn.-Br. Surge Limiter See Note 1 |
| 38 | 2200Ω | ½ | B84222 | BTS-2200 | Red-Red-Red Filter |
| 49 | 100Ω | 2 | B84101 | BW-2-100 | Br.-Blk.-Br. Surge Limiter See Note 1 |
| 50 | 100Ω | 2 | B84101 | BW-2-100 | Br.-Blk.-Br. " " " " 1 |
| 51 | 1000Ω | ½ | B84102 | BTS-1000 | Br.-Blk.-Red Filament String " " 2 |

Note 1: On later production Item 37 is omitted and Items 49 & 50 are used in series.

Note 2: Not used on all models.

† Set Slider at 1750Ω from one end.

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | AIRLINE | STANCOR | THORDAR'N | | |
| | PRI. | SEC. | PRI. | SEC. | PART No. | PART No. | PART No. | | |
| 39 | 5700Ω | 3.4Ω | 470Ω | 1.1Ω | 51X94 | A-3877 * | T-22S46 * | | * Drill new mounting holes. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | AIRLINE PART No. | JENSEN PART No. | | |
| 40 | FIELD P#1 | VC IMP. 3.4Ω | 12A477 | ST-113 * Mod. P4-A | | * Drill new mounting holes. |
| 41 | CONE DIa. 4" | VC DIa. ½" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

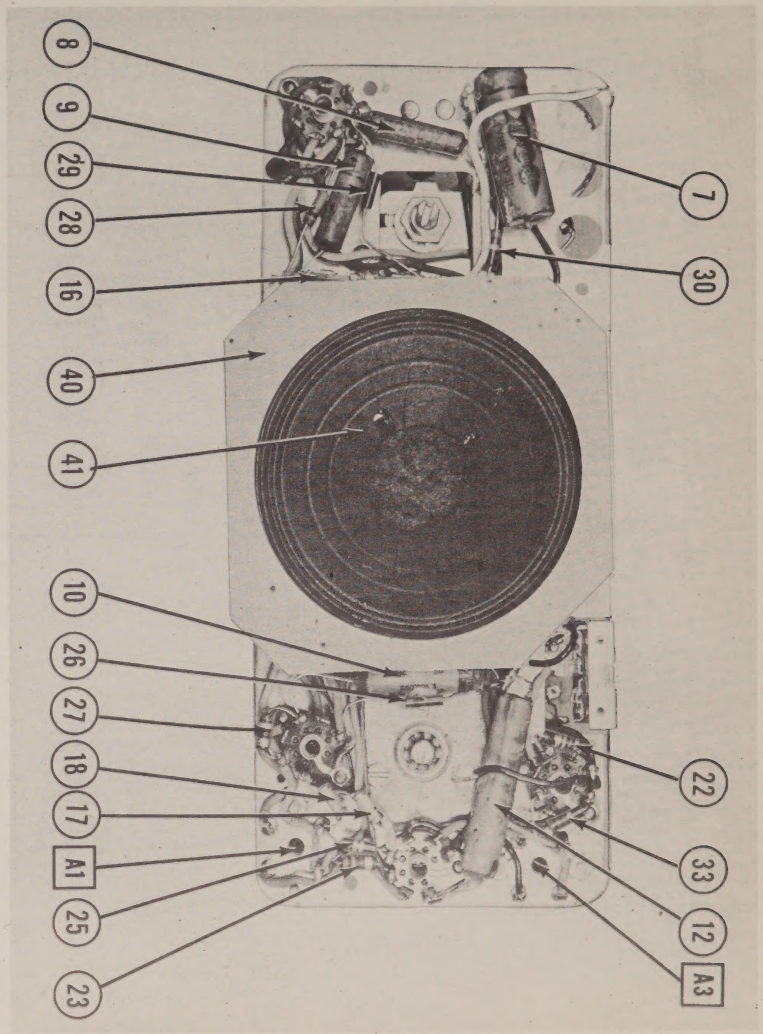
## R F COILS

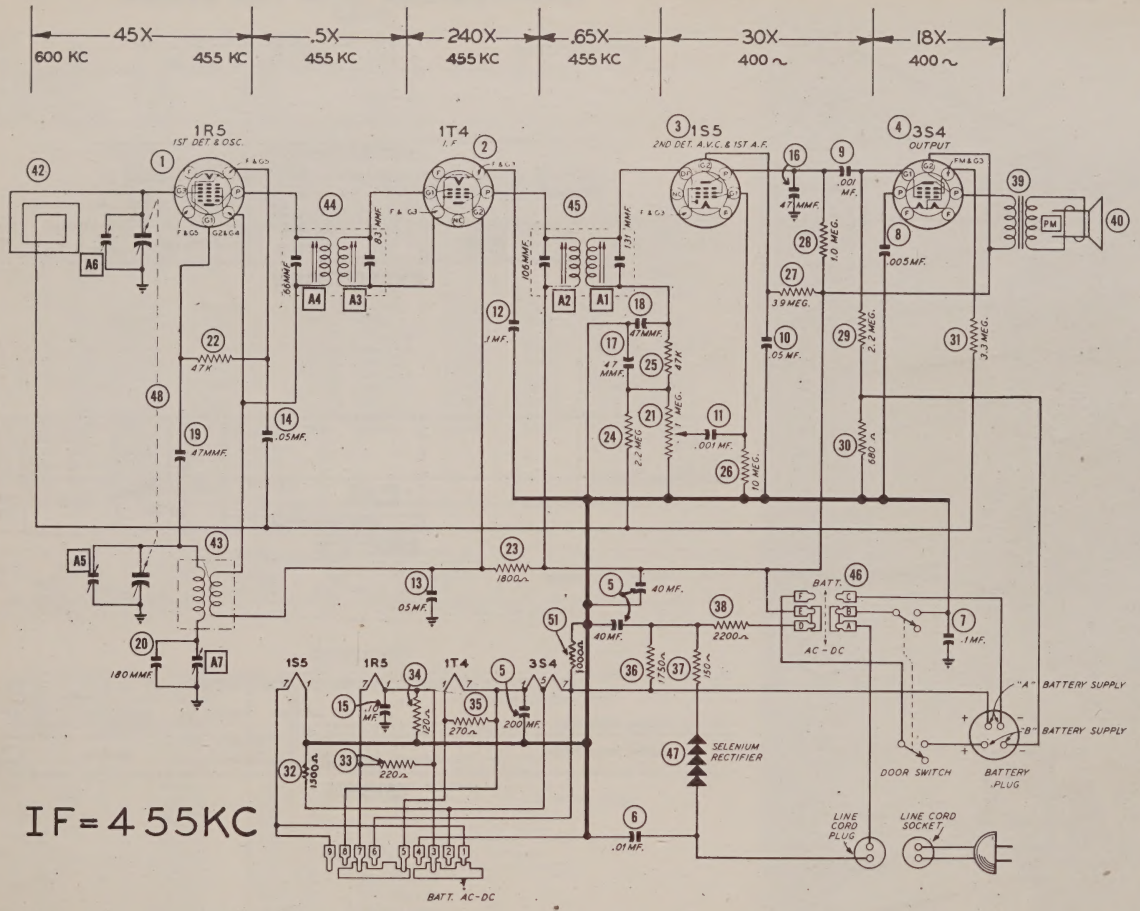
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | AIRLINE PART No. | MEISSNER PART No. * | |
| 42 | Loop Ant. | | 3Ω | 9A1551 | | |
| 43 | Osc. Coil | 3.5Ω | 9Ω | 9A1552 | | |
| 44 | Input IF | 20Ω | 20Ω | 9A1823 | | |
| 45 | Output IF | 16Ω | 16Ω | 9A1824 | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| 46 | Change-Over Sw. | 28A409 | |
| 47 | Selenium Rectifier | 66X7 | |
| 48 | 2-Gang Var. Cap. | 14A158 | Osc. & Ant. Trimmers Included |
| A7 | Trimmer | 17A186 | Osc. Padder |
| | On-Off Switch | 2A201 | |
| | Knob | 10A590 | |

# CHASSIS—BOTTOM VIEW






NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

| Pin | 1R5 | | 1T4 | |
|---|---|---|---|---|
| No. | Volt. | Res | Volt | Res. |
| 1 | 1.7 V.DC | * | 3.3 V.DC | * |
| 2 | 55 V.DC | 5500Ω | 63 V.DC | 3700Ω |
| 3 | 55 V.DC | 5500Ω | 55 V.DC | 5500Ω |
| 4 | 1.4 V.DC | 40 KΩ | 1 V.DC | 720Ω |
| 5 | 1.7 V.DC | * | 3.3 V.DC | * |
| 6 | .3 V.DC | 1.5 MEG. | 3.3 V.DC | * |
| 7 | 3.3 V.DC | * | 4.9 V.DC | * |

| Pin | 1S5 | | 3S4 | |
|---|---|---|---|---|
| No. | Volt. | Res | Volt | Res. |
| 1 | 0 V. | * | 4.9 V.DC | * |
| 2 | 63 V.DC | 3700Ω | 60 V.DC | 4 KΩ |
| 3 | 1.2 V.DC | 760KΩ | 0 V. | 1.7 MEG. |
| 4 | 18 V.DC | 3.9 MEG. | 63 V.DC | 3700Ω |
| 5 | 23 V.DC | 1 MEG. | 6.5 V.DC | * |
| 6 | 0 V. | 10 MEG. | 60 V.DC | 4 KΩ |
| 7 | 1.7 V.DC | * | 8 V.DC | * |

* DO NOT USE OHMMETER TO CHECK FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4610-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to B-.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

AIRLINE
MODELS 64BR-1205A, 64BR-1206A

AIRLINE
MODELS 64BR-1205A, 64BR-1206A

AIRLINE MODEL 64BR-1205A

| | |
|---|---|
| TRADE NAME | Airline Models 64BR-1205A, 64BR-1206A |
| MANUFACTURER | Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill. |
| TYPE SET | Battery Operated Superheterodyne Receiver |
| TUBES | Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output. |
| POWER SUPPLY | 1.5 Volt "A" Battery & 90 Volt "B" Battery |
| TUNING RANGE—BROADCAST | 540-1700KC RATING 270MA @ 1.6 VDC & 12.5MA @ 97 VDC |

**ALIGNMENT INSTRUCTIONS**

To set pointer, turn tuning control fully clockwise and set pointer at 1700KC. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #6 (grid) of 1R5. Low side to chassis. | 455KC | High freq.end. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| .1 MFD. | " | 1700KC | " " " | " | A5 | " " " " |
| 200 MMF. | High side to ant. lead. (Yellow). Low side to chassis. | " | " " " | " | A6 | " " " " |
| 200 MMF. | " | 1400KC | Tune for maximum output. | " | Antenna Coil(35) | Adjust position of ant. coil for maximum output. Recheck A6 at 1700KC. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1R5 | 1R5 | 5AT | |
| 2 | IF Amp. | 1T4 | 1T4 | 6AK | |
| 3 | Det.-AVC-AF | 1S5 | 1S5 | 6AU | |
| 4 | Power Output | 3S4 | 3S4 | 7BA | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRLINE PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 5A | 10 | 150 | BEA8C-1025B | DY-2x10-150 | EL-101 | AF22F | UP1145 | FP225 | ■ 3S4 Screen Bypass |
| B | 10 | 150 | | | | | | | ▲ Pwr. Supp. Bypass |
| 6 | .002 | 600 | BEC8D-10784 | S-6-002 | TC-22 | 684-002 | DT6D2 | TP405 | 3S4 Plate Bypass |
| 7 | .006 | 600 | BEC8D-10785 | S-6-006 | TC-26 | 684-006 | DT6D6 | TP409 | Audio Coupling |
| 8 | .02 | 400 | BEC8D-10774 | S-4-02 | TC-12 | 464-02 | DT4S2 | TP423 | Audio Screen Bypass |
| 9 | .003 | 600 | BEC8D-10786 | S-6-003 | TC-23 | 684-003 | DT6D3 | TP406 | Audio Coupling |
| 10 | .05 | 200 | BEC8D-10770 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 11 | .25 | 200 | BEC8D-10778 | S-4-25 | TC-2 | 464-.25 | DT4P25 | TP430 | Pwr. Supp. Bypass |
| 12 | .1 | 200 | BEC8D-10771 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | IF Screen Bypass |
| 13 | .001 | 600 | BEC8D-10787 | S-6-001 | TC-21 | 684-001 | DT6D1 | TP404 | AVC Filter |
| 14 | 47 | 500 | BEC-8F3-6 | M0.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Osc. Grid Capacitor |
| 15 | 45 | | BEB8G-10426 | | | | | | Fixed Trimmer Cer. |
| 16 | 330 | 500 | BEC-8F3-11 | M0.5-33 | MS-33 | 1468-0003 | 5W5T3 | MC241 | Ant. Coupling |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 17A | 1 Meg. | 1 | BEA-1013-10368 | MK402 | D13-137 | AM-63-Z | Volume Control |
| B | Shaft | | | Not Req. | E | KSS-3 | Attach to 17A per instructions |
| C | Switch | | | M27 | 42 | SW-A2 | " " " " " |

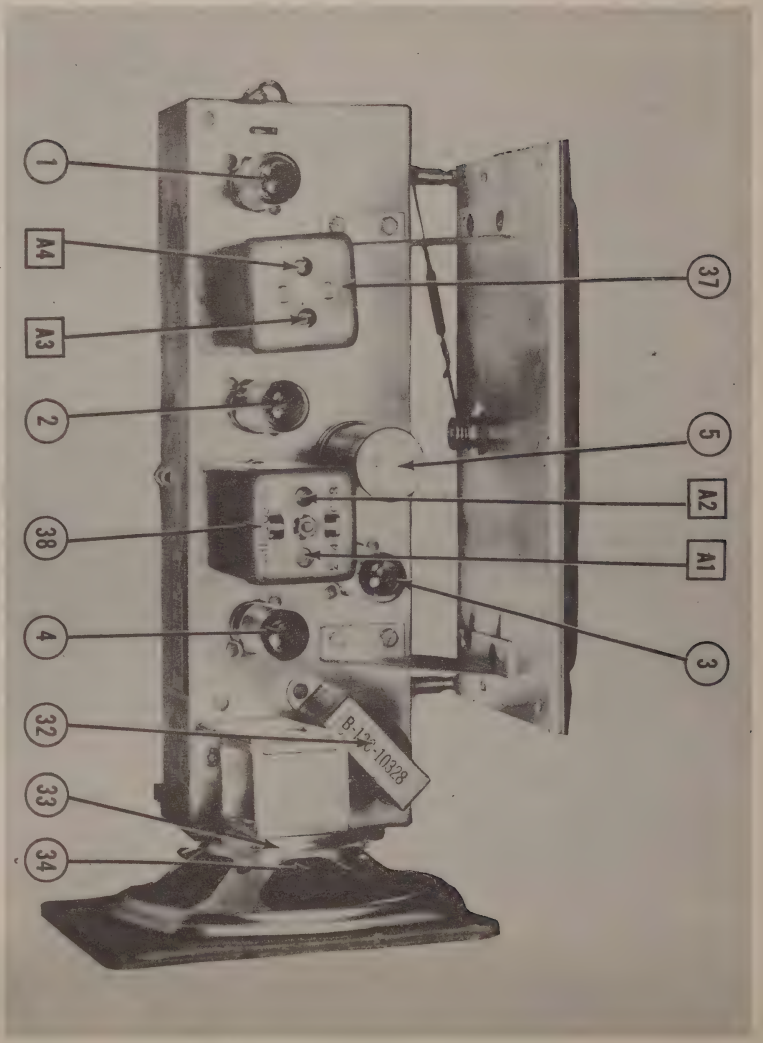
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 18 | 10KΩ | ½ | BEC-9B1-74 | BTS-10K | Br.-Blk.-Or. Antenna Load |
| 19 | 3.3 Meg. | ½ | BEC-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 20 | 100KΩ | ½ | BEC-9B1-86 | BTS-100K | Br.-Blk.-Yl. Oscillator Grid |
| 21 | 15KΩ | ½ | BEC-9B1-76 | BTS-15K | Br.-Grn.-Or. Voltage Dropping |
| 22 | 18KΩ | ½ | BEC-9B1-77 | BTS-18K | Br.-Gray-Or. Oscillator Coil Shunt |
| 23 | 3.3 Meg. | ½ | BEC-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 24 | 82KΩ | ½ | BEC-9B1-85 | BTS-82K | Gray-Red-Or. Diode Load |
| 25 | 10 Meg. | ½ | BEC-9B1-37 | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 26 | 3.3 Meg. | ½ | BEC-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. 1st AF Screen Dropping |
| 27 | 820KΩ | ½ | BEC-9B1-97 | BTS-820K | Gray-Red-Yl. 1st AF Plate Load |
| 28 | 2.2 Meg. | ½ | BEC-9B1-53 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 29 | 330Ω | ½ | BEC-9B1-56 | BW-½-330 | Or.-Or.-Br. Bias |
| 30 | 330Ω | ½ | BEC-9B1-56 | BW-½-330 | Or.-Or.-Br. Battery Economizer |
| 31 | 10KΩ | ½ | BEC-9B1-74 | BTS-10K | Br.-Blk.-Or. Output Screen Dropping |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: AIRLINE PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 32 | 6000Ω | 3.2Ω | 480Ω | .6Ω | B-12C-10328 | A-3678 | T-22847 | | |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

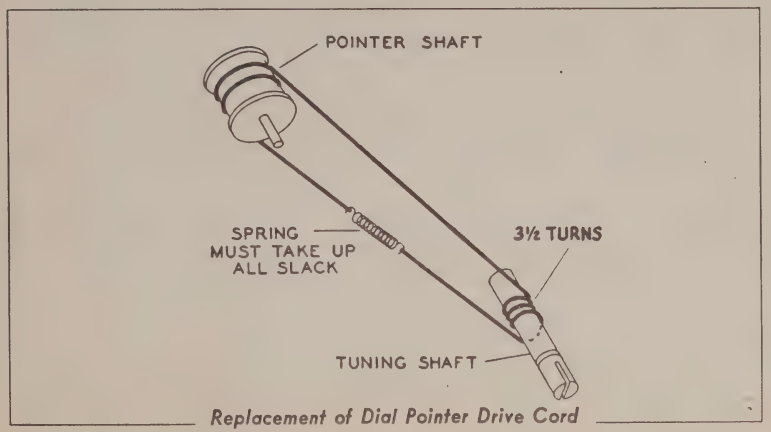
| ITEM No. | RATINGS | | REPLACEMENT DATA AIRLINE PART No. | REPLACEMENT DATA JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-105# | | |
| 33 | PM | 3.2Ω | B-18A-10284 | Mod. P5-X | | #Fabricate new mounting bracket. |
| | CONE DIA. | VC DIA. | | | | |
| 34 | 4½" | ½" | NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA AIRLINE PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 35 | Ant. Coil | | 9.5Ω | | | Items 35, 36 ganged together and slug tuned. May be obtained as complete unit under Part No. BEC-211-10403. |
| 36 | Osc. Coil | 1.5Ω | 6.7Ω | | | |
| 37 | Input IF | 25Ω | 25Ω | BEB-13A-10333 | 16-6658* | *Drill new mtg. holes. |
| 38 | Output IF | 28Ω | 28Ω | BEB-13B-10334 | 16-6660** | **Drill new mtg. holes. From low end of secondary add 100 MMFD cap. to grnd. |

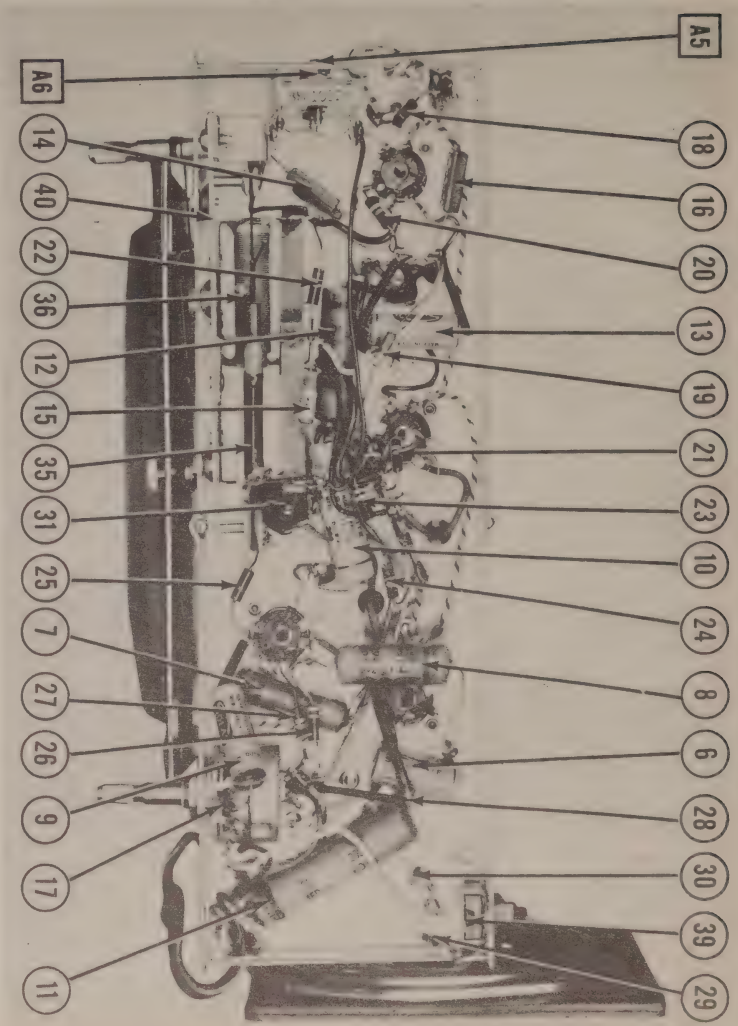
## MISCELLANEOUS

| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| 39 | Switch | BEA-20C-10317 | Economizer |
| 40 | Tuner Assby. | BEC-211-10403 | |
| A5 A6 | Trimmer Cap. | BEA-3H-10320 | Osc. Adj. 84-156 MMF. Ant. Adj. 84-156 MMF. |
| | Dial Scale | BEB-6D-10287 | For Brown Cabinet. |
| | " " | BEB-6D-10287-1 | For Ivory Cabinet. |
| | " Crystal | BEB-6D-10290 | |
| | Pointer | BEB-2G-10118 | |
| | Cabinet | BE5C-10108-46 | Brown |
| | " | BE5C-10108-9 | Ivory |
| | Knob | BEA-5B-10373-17 | Volume-Brown |
| | " | BEA-5B-10373-8 | " -Ivory |
| | " | BEB-5B-10377-17 | Tuning-Brown |
| | " | BEB-5B-10377-8 | " -Ivory |



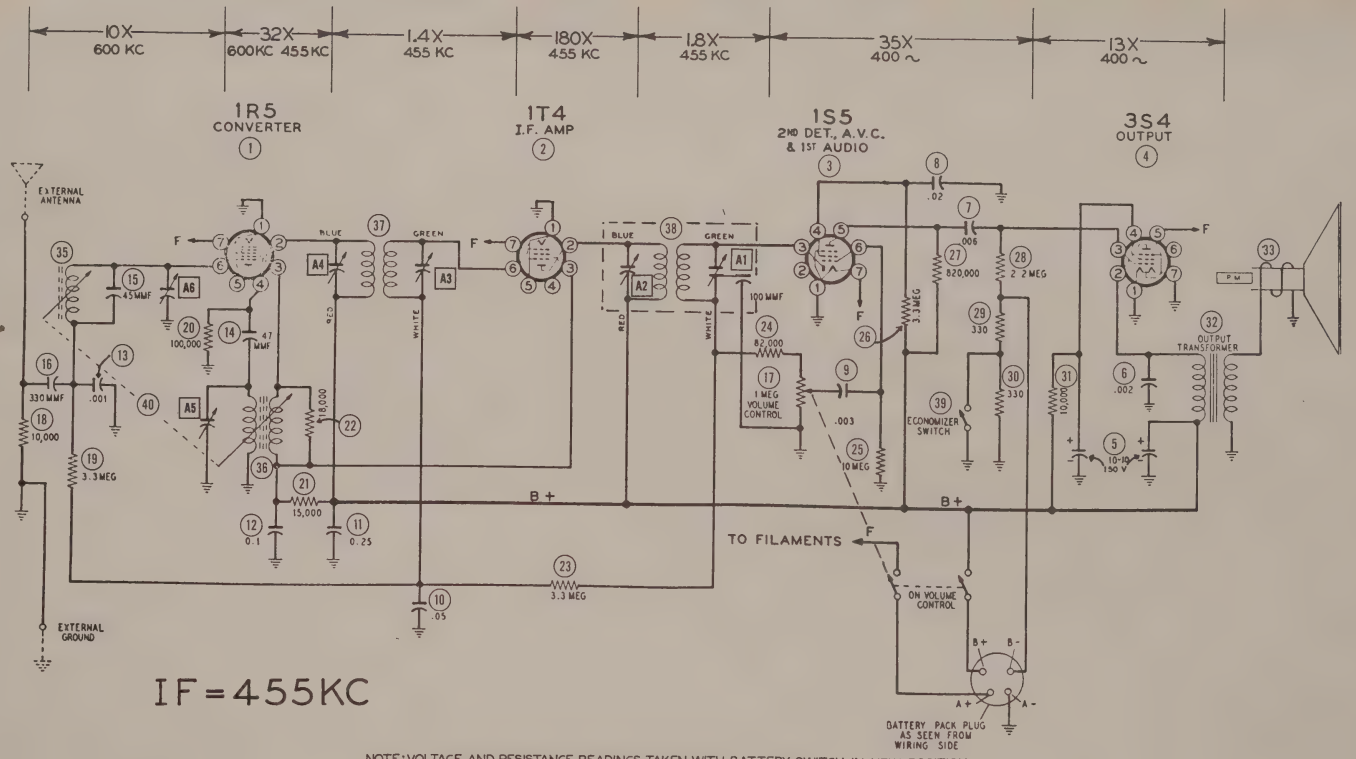

*Replacement of Dial Pointer Drive Cord*

# CHASSIS—BOTTOM VIEW






AIRLINE MODELS 64BR-1206A, 64BR-1206A




NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN WITH BATTERY SWITCH IN NEW POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0V. | 87 V.DC | 53V.DC | -3.3V.DC | 0V. | 0V. | 1.6V.DC |
| 2 | 1T4 | 0V. | 87 V.DC | 53V.DC | 87 V.DC | 0V. | 0V. | 1.6V.DC |
| 3 | 1S5 | 0V. | 0V. | -2V.DC | 23V.DC | 25V.DC | 0V. | 1.6V.DC |
| 4 | 3S4 | 0V. | 84V.DC | ∓45V.DC | 75V.DC | 1.6V.DC | 84V.DC | 0V. |

∓ MEASURED ON 50 VOLT SCALE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | * | 90Kᴀ | 105Kᴀ | 96Kᴀ | * | 7 MEG. | * |
| 2 | 1T4 | * | 90Kᴀ | 105Kᴀ | 90Kᴀ | * | 4 MEG. | * |
| 3 | 1S5 | * | INF. | 975Kᴀ | 3.3MEG. | 910Kᴀ | 10 MEG. | * |
| 4 | 3S4 | * | 90Kᴀ | 1.7 MEG. | 90Kᴀ | * | 90Kᴀ | * |

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

AUTOMATIC MODEL 640

| | |
|---|---|
| TRADE NAME | Automatic Model 640, Series "B" |
| MANUFACTURER | Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass. |
| TYPE SET | AC Operated Combination Phono - Superheterodyne Receiver with Self Contained Loop Ant. |
| TUBES (FIVE) | Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier- Or Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 117 Volts AC |
| TUNING RANGE—BROADCAST | 538-1685KC RATING .255 Amps. @ 117V AC |

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .05 MFD. | High side to pin #8 (signal grid) of 12SA7. Low side to chassis. | 455KC | Point of no interfering signal. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 200 MMF. | High side to ext. ant. Low side to chassis. | 1685KC | High freq.end (Variable fully open) | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | 1400KC | Tune for maximum output. | " | A6 | Place loop and chassis in same relative position as they are when mounted in cabinet. Adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: AUTOMATIC PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 14Q7 or 12SA7 | 14Q7 or 12SA7 | 8AL | |
| 2 | IF Amp. | 14A7 or 12SK7 | 14A7 or 12SK7 | 8V | |
| 3 | Det.-AVC-AF | 14B6 or 12SQ7 | 14B6 or 12SQ7 | 8W | |
| 4 | Power Output | 50A5 or 50L6GT | 50A5 or 50L6GT | 6AA | |
| 5 | Rectifier | 35Y4 or 35Z5GT | 35Y4 or 35Z5GT | 5AL | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AUTOMATIC PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 50 | 150 | | M-50-150 | UT-501 | PRS150-50 | BR5015 | TC49 | Filter |
| 7 | 30 | 150 | | M-30-150 | UT-301 | PRS150-30 | BR3015 | TC47 | " |
| 8 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 9 | .01 | 600 | | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Output Plate Bypass |
| 10 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 11 | .002 | 400 | | S-6-002 | TC-22 | 484-002 | DT6D2 | TP405 | Tone Compensation |
| 12 | .002 | 400 | | S-6-002 | TC-22 | 484-002 | DT6D2 | TP405 | Audio Coupling |
| 13 | .1 | 200 | | S-4-1 | TC-1 | 484-1 | DT4P1 | TP428 | AVC Filter |
| 14 | .002 | 400 | | S-6-002 | TC-22 | 484-002 | DT6D2 | TP405 | Ant. Coupling |
| 15 | 200 | 500 | | MO.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | MC237 | IF Bypass Diode |
| 16 | 500 | 500 | | MO.5-35 | 1FM-35 | 1468-0005 | 5W5T5 | MC245 | Audio Plate Bypass |
| 17 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Osc. Grid Capacitor |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AUTOMATIC PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 18A | 250KΩ | 1 | RV-46 | MR441 | D13-1301† | AM-64-Z1 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | A | Not Req. | Attach to 18A per instructions |
| C | Switch | | " | M26 | 41 | SW-A | " " " " |

†Install a 22KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

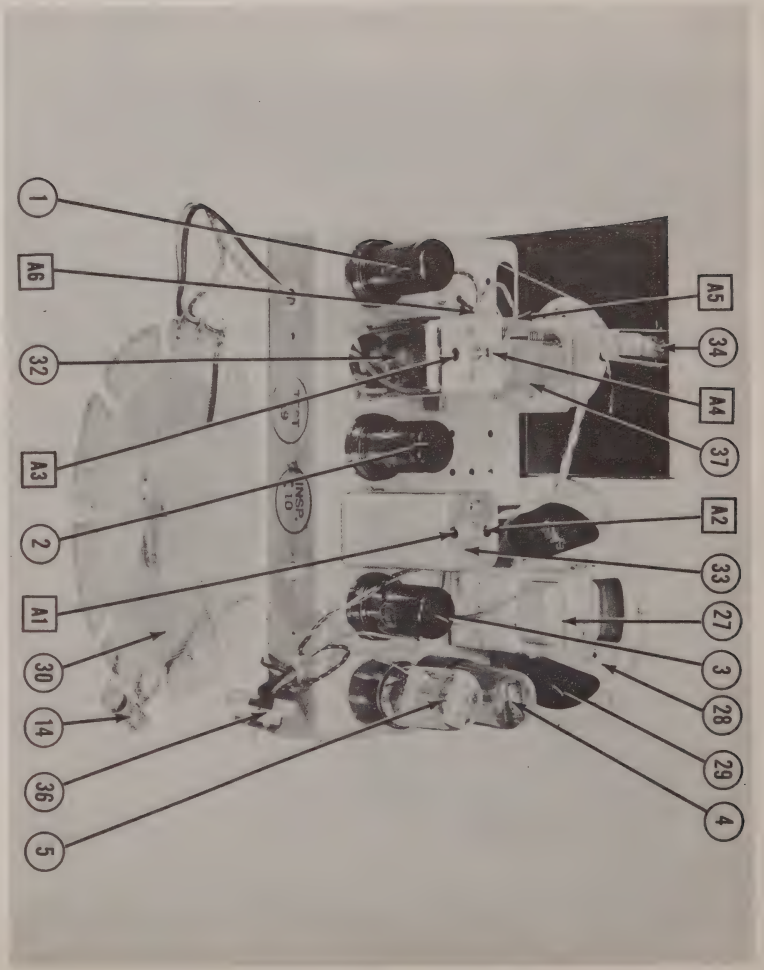
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AUTOMATIC PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 19 | 20KΩ | ½ | | BTS-22K | Red-Blk.-Or. Oscillator Grid |
| 20 | 2 Meg. | ½ | | BTS-2.2 Meg. | Red-Blk.-Grn. AVC Network |
| 21 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 22 | 240KΩ | ½ | | BTS-270K | Red-Yl.-Yl. 1st AF Plate Load |
| 23 | 1.2 Meg. | ½ | | BTS-1.2 Meg. | Br.-Red-Grn. Output Grid |
| 24 | 150Ω | 1 | | BT-1-150 | Br.-Grn.-Br. Output Cathode |
| 25 | 1000Ω | 1 | | BTS-1000 | Br.-Blk.-Red Filter |
| 26 | 240K | ½ | | BTS-270K | Red-Yl.-Yl. Series Phono. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: AUTOMATIC PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 27A | 2000Ω | 3.3Ω | 125Ω | .45Ω | Part of PM-601 | A-3876* | T-22845* | | *Bend mounting tabs down, file out slots and mount on original bracket. |
| B | | | | | Part of PM-306 | | | | Alternate Transformer |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA AUTOMATIC PART No. | REPLACEMENT DATA JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 28A | FIELD | VC IMP. | | ST-106 | | |
| | PM | 3.3Ω | PM-601 | Mod. P5-W | | |
| B | | | PM-606 | | | Alternate Speaker |
| | CONE DIA. | VC DIA. | | | | |
| 29 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA AUTOMATIC PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 30 | Loop Ant. | 0Ω | 1Ω | | | |
| 31 | Osc. Coil | | 5Ω | | 14-1040 | |
| 32 | Input IF | 19Ω | 22Ω | | 16-6658 | |
| 33 | Output IF | 16.5Ω | 17Ω | | 16-6660 | |

## DIAL LIGHT

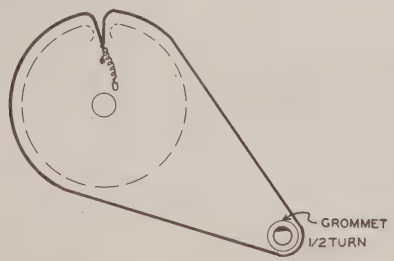
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA AUTOMATIC PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 34 | Bayonet | 6-8 | 0.15 | Brown | | | Type 47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | AUTOMATIC PART No. | NOTES |
|---|---|---|---|
| 35 | Switch | | Phono-Radio |
| 36 | Tone Switch | | |
| 37 | Tuning Cap. Crystal Cart. | CV-147-A | 2 Gang Variable Cap. Astatic #CL707 or equiv. |

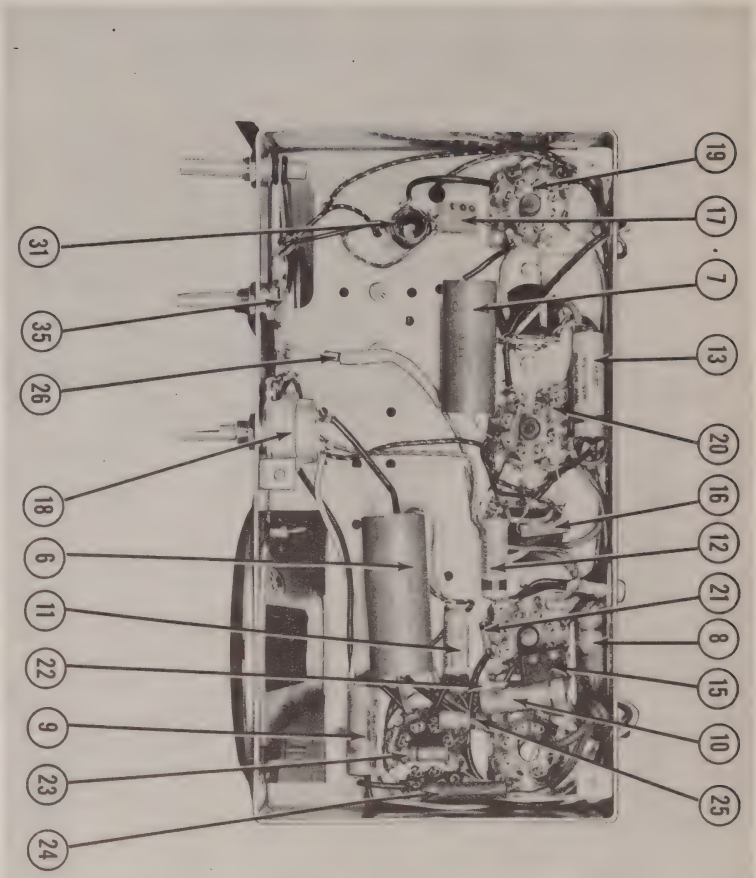
DISASSEMBLY INSTRUCTIONS

1. Remove three control push-on type knobs and felt washers.
2. Remove nut and washer holding loop antenna to cabinet. Remove loop.
3. Disconnect phono-pickup plug from back of chassis.
4. Disconnect the black and white phono-motor leads.
5. Remove three machine screws and washers holding chassis to chassis board.
6. Remove the two Phillips head screws from the tone control switch on turntable board.
7. Remove chassis from cabinet.

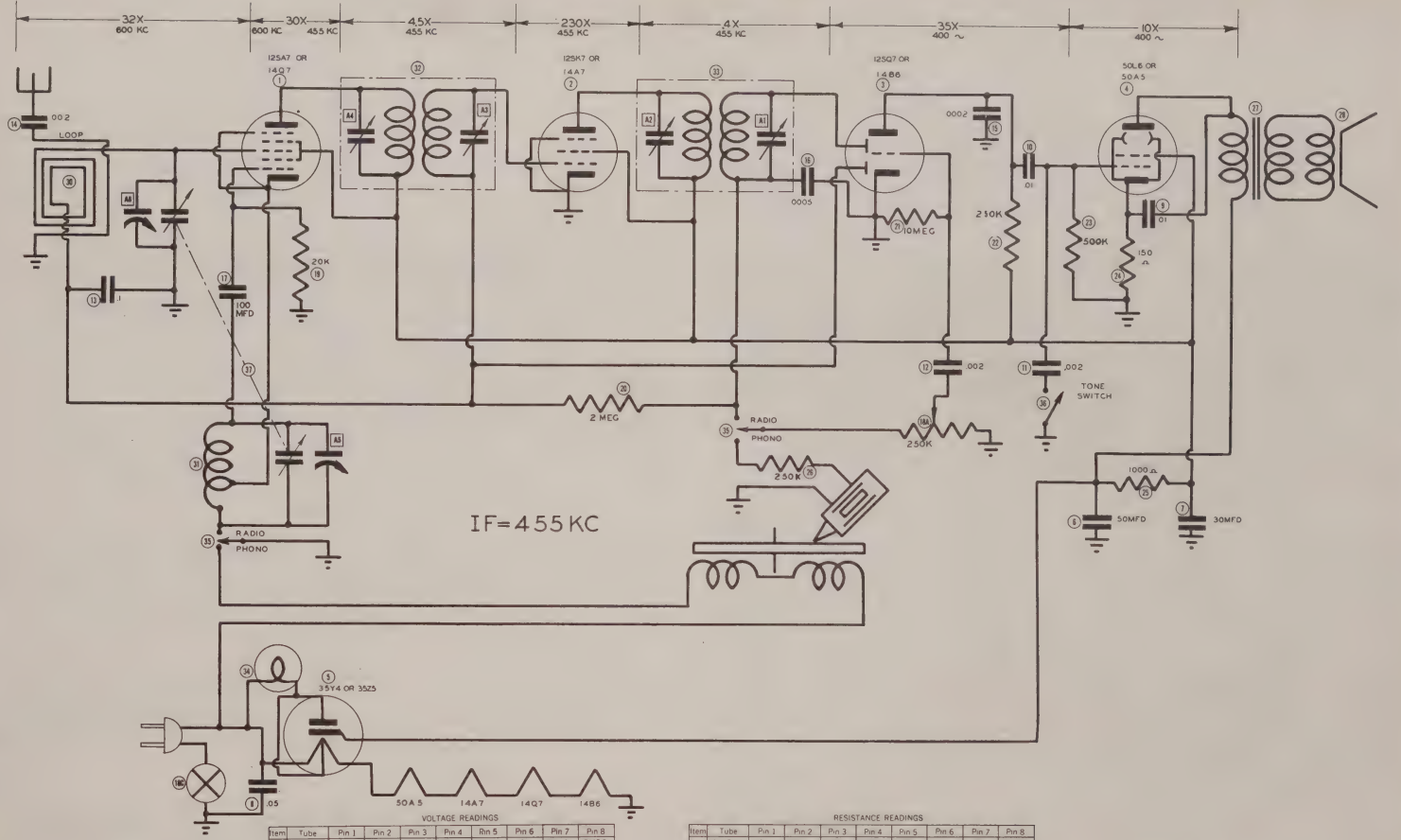



DIAL CORD DRIVE

# CHASSIS—BOTTOM VIEW




AUTOMATIC MODEL 640




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 0V. | 25V.AC | 90V.DC | 90V.DC | -.5V.DC | 0V. | 12V.AC | -3V.DC |
| 2 | 12SK7 | 0V. | 25V.AC | 0V. | -3V.DC | 0V. | 90V.DC | 37V.AC | 90V.DC |
| 3 | 12SQ7 | 0V. | -4V.DC | 0V. | -3V.DC | -3V.DC | 62V.DC | 12V.AC | 0V. |
| 4 | 50L6GT | 0V. | 87V.AC | 115V.DC | 90V.DC | 0V. | 0V. | 37V.AC | 57V.DC |
| 5 | 35Z5GT | 0V. | 117V.AC | 113V.AC | 0V. | 113V.AC | 0V. | 87V.AC | 120V.DC |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 0Ω | 23Ω | 70KΩ | 70KΩ | 16KΩ | 5Ω | 12Ω | 2.2MEG. |
| 2 | 12SK7 | 0Ω | 23Ω | 0Ω | 2.2MEG. | 0Ω | 70KΩ | 35Ω | 70KΩ |
| 3 | 12SQ7 | 0Ω | 10MEG. | 0Ω | 245KΩ | 2.2MEG. | 320KΩ | 12Ω | 0Ω |
| 4 | 50L6GT | 0Ω | 78Ω | 70KΩ | 70KΩ | 1MEG. | 0Ω | 35Ω | 120Ω |
| 5 | 35Z5GT | INF. | 103Ω | 100Ω | 0Ω | 100Ω | 0Ω | 78Ω | 70KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-4

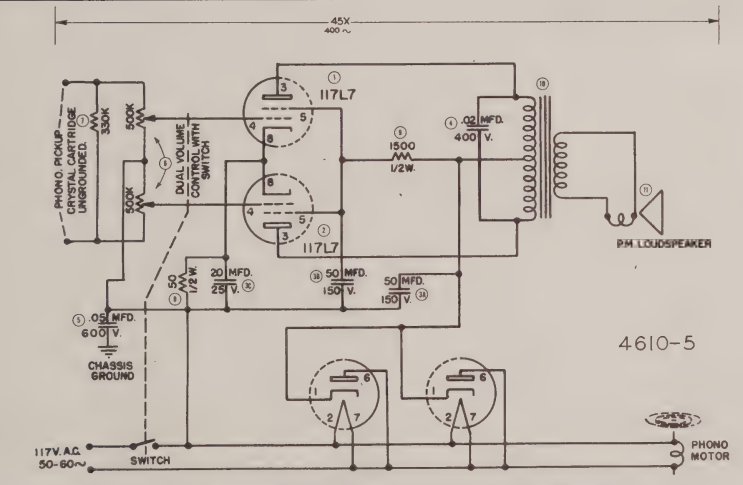
**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

BELL SOUND
MODEL 2075

BELL SOUND MODEL 2075

| | |
|---|---|
| **TRADE NAME** | Bell Sound Model 2075 |
| **MANUFACTURER** | Bell Sound Systems, Inc., 1183 Essex Ave., Columbus, Ohio |
| **TYPE SET** | AC Operated Portable Record Player with 2 Tube Amp. & Speaker |
| **TUBES** (TWO) | Types 2-117L7 Power Output-Rect. |
| **POWER SUPPLY** | 117 Volts AC RATING .365 Amp. @ 117V AC |




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 117L7 | 128 V.DC | 0V. | 123V.DC | 0V. | 116 V.DC | 117 VAC | 117 VAC | 53V.DC |
| 2 | 117L7 | 128 V.DC | 0V. | 123V.DC | 0V. | 116 V.DC | 117 VAC | 117 VAC | 53V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 117L7 | 55KΩ | 0Ω | 55KΩ | 470KΩ | 55KΩ | 77Ω | 77Ω | 49Ω |
| 2 | 117L7 | 55KΩ | 0Ω | 55KΩ | 430KΩ | 55KΩ | 77Ω | 77Ω | 49Ω |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: BELL SOUND PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Pwr.Output-Rect. | 117L7 | 117L7 | 8A0 | |
| 2 | Pwr.Output-Rect. | 117L7 | 117L7 | 8A0 | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: BELL SOUND PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 3A | 50 | 150 | | DY-307 | EL-352 | AF1010D | UP6CJ41 | FP311 | ■ Filter |
| B | 50 | 150 | | | | " | " | " | ▲ " |
| C | 20 | 25 | | | | PRS25-25 | | | Cath. Bypass |
| 4 | .02 | 400 | | S-4-02 | TC-12 | 464-02 | DT4S2 | TP423 | Output Plate Bypass |
| 5 | .05 | 600 | | S-6-05 | TC-15 | 684-05 | DT6S5 | TP615 | Line Isolation |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BELL SOUND PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 6A | 500KΩ | 1 | | | | | Volume Control-Front Section-See Note |
| B | 500KΩ | 1 | | | | | " " Center " " " |
| C | Switch | | | | | | Off-On Switch Rear-Section-See Note |

Note-This is a 3 gang unit operated by single shaft.

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BELL SOUND PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 7 | 330KΩ | ½ | | BTS-330K | Or.-Or.-Yl. Phono. Shunt-See Note 1 |
| 8 | 6Ω | ½ | | BW-½-47 | Brn.-Blk.-Blk. Output Cathode |
| 9 | 1500Ω | ½ | | BTS-1500 | Br.-Grn.-Red Output Screen Dropping |

Note 1 - Not used in later production.

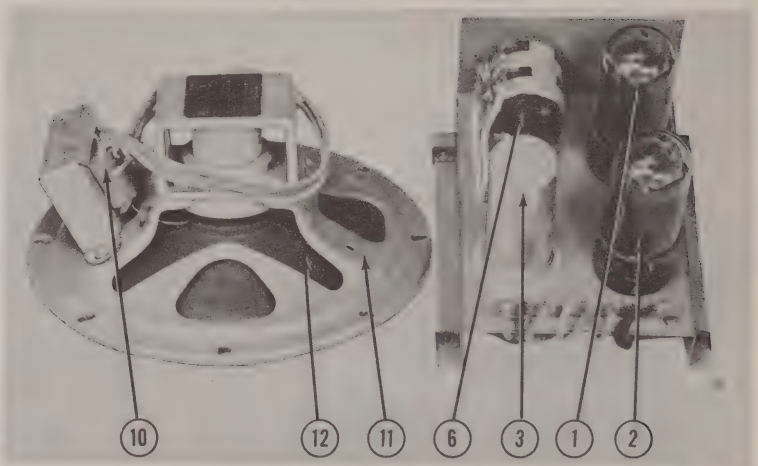
## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: BELL-SOUND PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 5000Ω CT | 3.4Ω | 250Ω CT | .5Ω | | A-3823 | T-22547* | | *Drill one new mounting hole. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: BELL SOUND PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-111 | | |
| 11 | PM | 3.4Ω | | Mod. 16-U | | |
| | CONE DIA. | VC DIA. | | | | |
| 12 | 6" | 5/8" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW

BELMONT
MODELS 4B112, 4B113

BELMONT
MODELS 4B112, 4B113

BELMONT MODEL 4B112

| | |
|---|---|
| TRADE NAME | Belmont Models 4B112, 4B113 Series A |
| MANUFACTURER | Belmont Radio Corp., 5921 West Dickens Ave., Chicago 39, Ill. |
| TYPE SET | Battery Operated Superheterodyne Receiver |
| TUBES (FOUR) | Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-1st AF, 3Q5GT Power Output |
| POWER SUPPLY | 1½ Volt "A" Battery & 90 Volt "B" Battery in Pack Form |
| RATING | 270 MA @ 1.6 VDC & 12.9 MA @ 95 VDC |
| TUNING RANGE—BROADCAST | 540-1700KC |

ALIGNMENT INSTRUCTIONS

To set pointer, turn tuning control fully counter-clockwise and set pointer in a horizontal position. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to grid cap.of 1A7. Low side to chassis. | 455KC | High freq. end (Cores all the way out of coils) | across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| .1 MFD. | " | 1700KC | " | " | A5 | " " " " |
| 200 MMF. | High side to ant. lead. Low side to ground lead. | " | " | " | A6 | " " " " |
| 200 MMF. | " | 1400KC | Tune for maximum output. | " | Ant.Coil | Using screwdriver adjust position of antenna coil for maximum output. Recheck A6 at 1700 KC. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1A7GT | 1A7GT | 7E | |
| 2 | IF Amp. | 1N5GT | 1N5GT | 6Y | |
| 3 | Det.-1st AF | 1H5GT | 1H5GT | 6Z | |
| 4 | Power Output | 3Q5GT | 3Q5GT | 7AP | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: BELMONT PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 5A | 10 | 150 | 119117 | M-10-150 | UT-121 | PRS150-12 | BR1215 | T42 | Pwr. Supp. Bypass * |
| B | .5 | 200 | C-8D-11270 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | " " " " * |
| 6 | .005 | 600 | C-8D-10935 | S-6-005 | TC-25 | 684-005 | DT6D5 | TP408 | 3Q5 Plate Bypass |
| 7 | .02 | 400 | C-8D-10774 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Audio Coupling |
| 8 | .003 | 600 | C-8D-11013 | S-6-003 | TC-23 | 684-003 | DT6D3 | TP406 | " " |
| 9 | .5 | 200 | C-8D-11270 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | Filament Bypass |
| 10 | .1 | 200 | C-8D-10771 | S-4-1 | TC-1 | 484-.1 | DT4P5 | TP428 | IF Screen Bypass |
| 11 | .25 | 200 | C-8D-10775 | S-4-25 | TC-2 | 484-.25 | DT4P25 | TP430 | Pwr. Supp. Bypass |
| 12 | .05 | 200 | C-8D-10770 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 13 | .05 | 200 | C-8D-10770 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Conv. Screen Bypass |
| 14 | .001 | 600 | C-8D-10787 | S-6-001 | TC-21 | 684-001 | DT6D1 | TP404 | AVC Filter |
| 15 | 100 | 500 | C-8F3-8 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Audio Plate Bypass |
| 16 | 100 | 500 | C-8F3-8 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | IF Bypass Vol. Cont. |
| 17 | 220 | 500 | C-8F3-10 | MO.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | MC237 | Osc. Grid Capacitor |
| 18 | 45 | | 129177 | | | | | | Fixed Trimmer |
| 19 | 330 | 500 | C-8F3-11 | MO.5-33 | MS-33 | 1468-0003 | 5W5T3 | MC241 | Ant. Coupling |

*Not used in all models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BELMONT PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 20A | 1 Meg. | 1 | 101250 | MK402 | D13-137 | AM-33-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KS.-3 | Attach to 20A per instructions |
| C | Switch | | " " | M27 | 42 | SW-.2 | " " " " " |

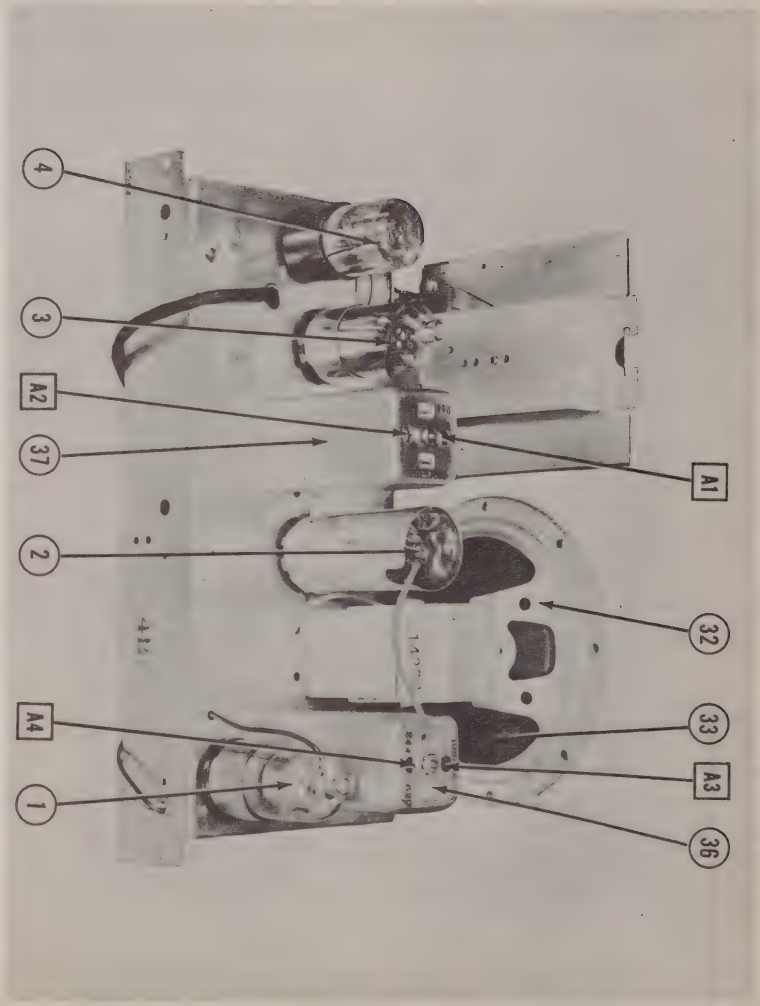
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 21 | 10KΩ | ½ | C-9B1-19 | BTS-10K | Br.-Blk.-Or. Antenna Load |
| 22 | 3.3 Meg. | ½ | C-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 23 | 33KΩ | ½ | C-9B1-80 | BTS-33K | Or.-Or.-Or. Converter Screen Dropping |
| 24 | 220KΩ | ½ | C-9B1-27 | BTS-220K | Red-Red-Yl. Oscillator Grid |
| 25 | 3.3 Meg. | ½ | C-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 26 | 47KΩ | ½ | C-9B1-82 | BTS-47K | Yl.-Vi.-Or. IF Screen Dropping |
| 27 | 4.7 Meg. | ½ | C-9B1-35 | BTS-4.7 Meg. | Yl.-Vi.-Grn. 1st AF Grid |
| 28 | 1 Meg. | ½ | C-9B1-31 | BTS-1 Meg. | Br.-Blk.-Grn. 1st AF Plate Load |
| 29 | 2.2 Meg. | ½ | C-9B1-33 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 30 | 390Ω | ½ | C-9B1-57 | BW-½-390 | Or.-White-Br. Bias |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 31 | 17500Ω | 3.2Ω | 475Ω | .52Ω | 10591B | A-3881 | T-22S48 | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

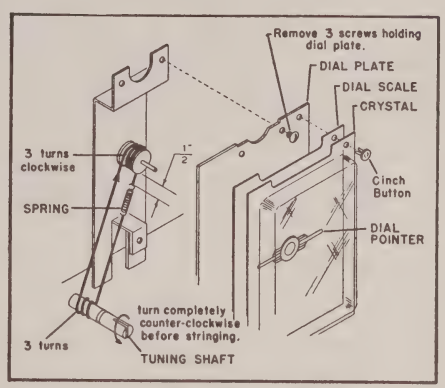
| ITEM No. | RATINGS | | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-107T | | |
| 32 | PM | 3.2Ω | 114283 | Mod. P8-V | | Fabricate New Mounting Bracket. |
| | CONE DIA. | VC DIA. | | | | |
| 33 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 34 | Ant. Coil | | 10Ω | 1364 | | Items 34, 35 ganged together and slug tuned. |
| 35 | Osc. Coil | 1.5Ω | 7Ω | 1364 | | |
| 36 | Input IF | 22.5Ω | 30Ω | 108202 | 16-6658 | |
| 37 | Output IF | 27Ω | 28Ω | 1081538 | 16-6360 | |

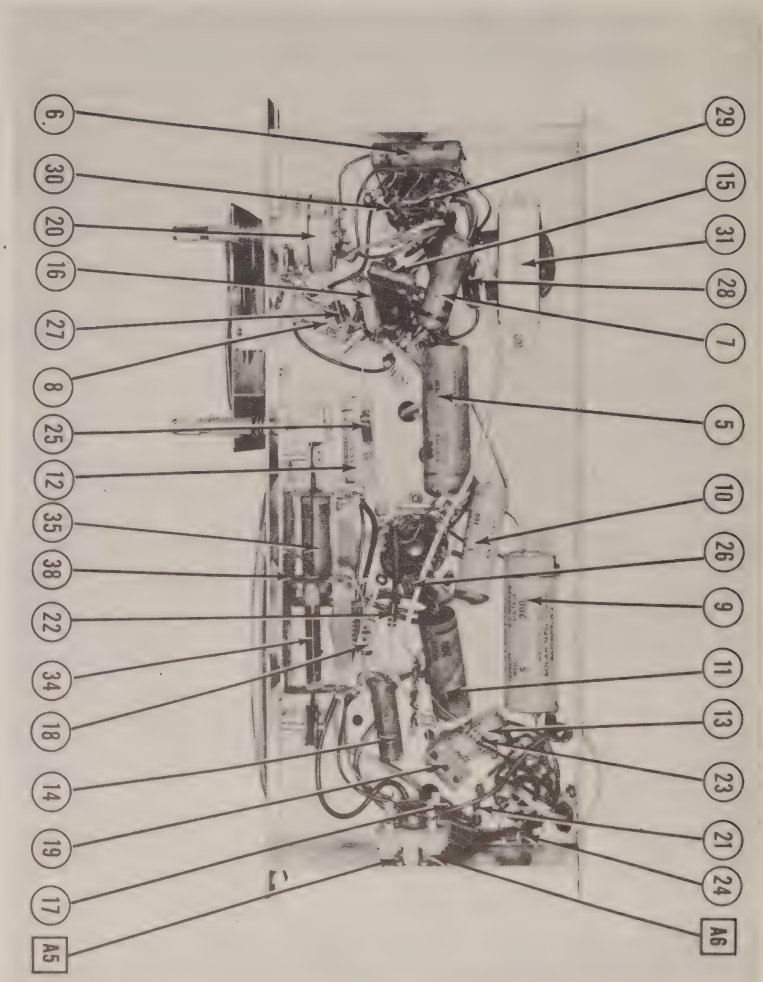
## MISCELLANEOUS

| ITEM No. | PART NAME | BELMONT PART No. | NOTES |
|---|---|---|---|
| 36 | Tuning Assembly | 1364 | Includes Ant. & Osc. Coils |
| A5,A6 | Dual Trimmer | 124165 | 84-156 MMF (Ant. & Osc.) |
| | Cabinet | 128621-18 | Walnut |
| | " | 128621-9 | Ivory |
| | Knob | 128523-17 | Walnut |
| | " | 128523-8 | Ivory |
| | Dial Scale | 112920 | |
| | Dial Crystal | 112914 | |
| — | Pointer | 112908B | |



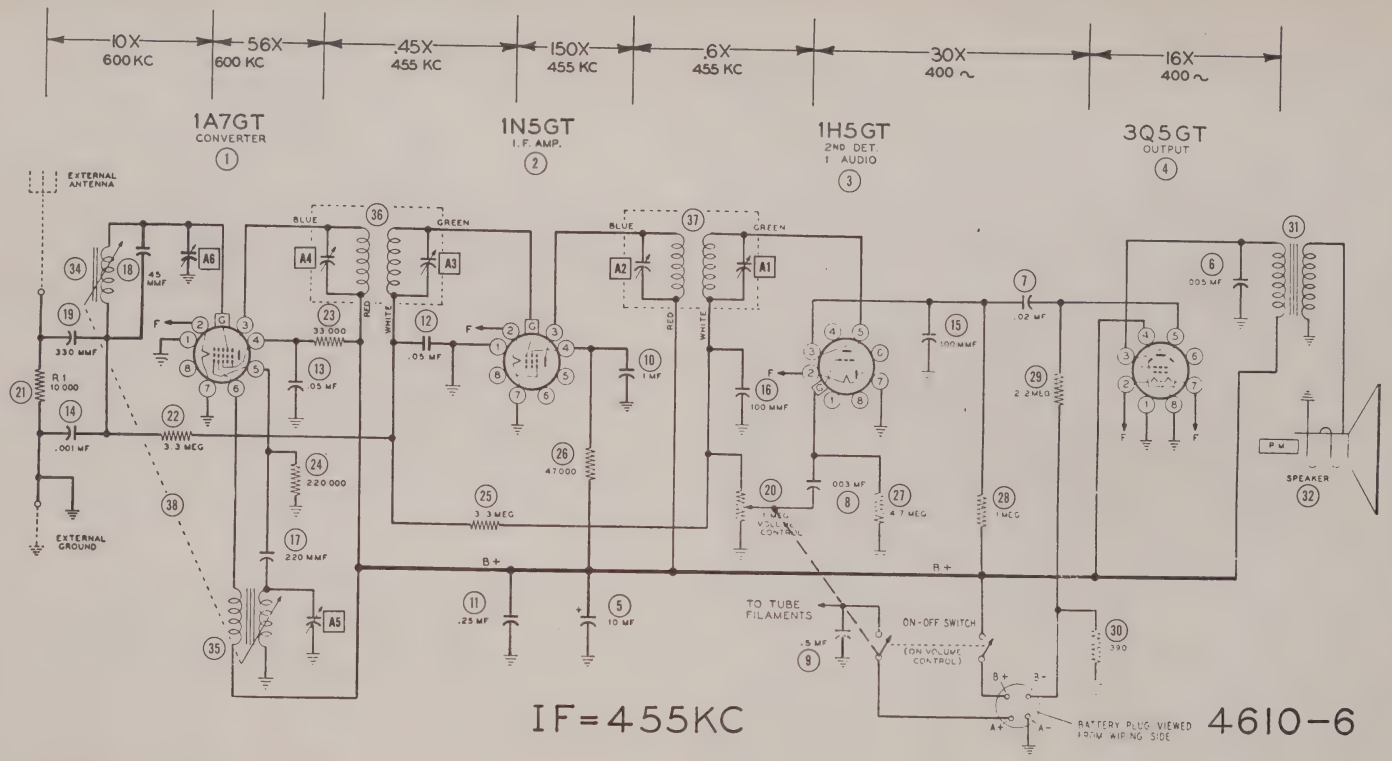

Replacement of Dial Pointer Drive Cord

## CHASSIS—BOTTOM VIEW




BELMONT MODELS 45112, 45113

BELMONT MODELS 45112, 45113




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0V. | 1.55V.DC | 90V.DC | 57V.DC | -8V.DC | 90V.DC | 0V. | 0V. | 0V. |
| 2 | 1N5GT | 0V. | 1.55V.DC | 90V.DC | 82V.DC | 90V.DC | 0V. | 0V. | 0V. | 0V. |
| 3 | 1H5GT | 0V. | 1.55V.DC | 57V.DC | 90V.DC | -3V.DC | -3V.DC | 0V. | 0V. | 0V. |
| 4 | 3Q5GT | 0V. | 1.55V.DC | 87V.DC | 90V.DC | -2.5V.DC | -5.2V.DC | 1.55V.DC | 0V. | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0Ω | * | INF. | INF. | 245KΩ | INF. | * | 11KΩ | 8MEG. |
| 2 | 1N5GT | 0Ω | * | INF. | INF. | INF. | INF. | * | 4MEG. | 4MEG. |
| 3 | 1H5GT | 0Ω | * | INF. | INF. | 960KΩ | 960KΩ | * | 4.5MEG. | 4.5MEG. |
| 4 | 3Q5GT | 0Ω | * | INF. | INF. | 2.5MEG. | 360Ω | * | * | |

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

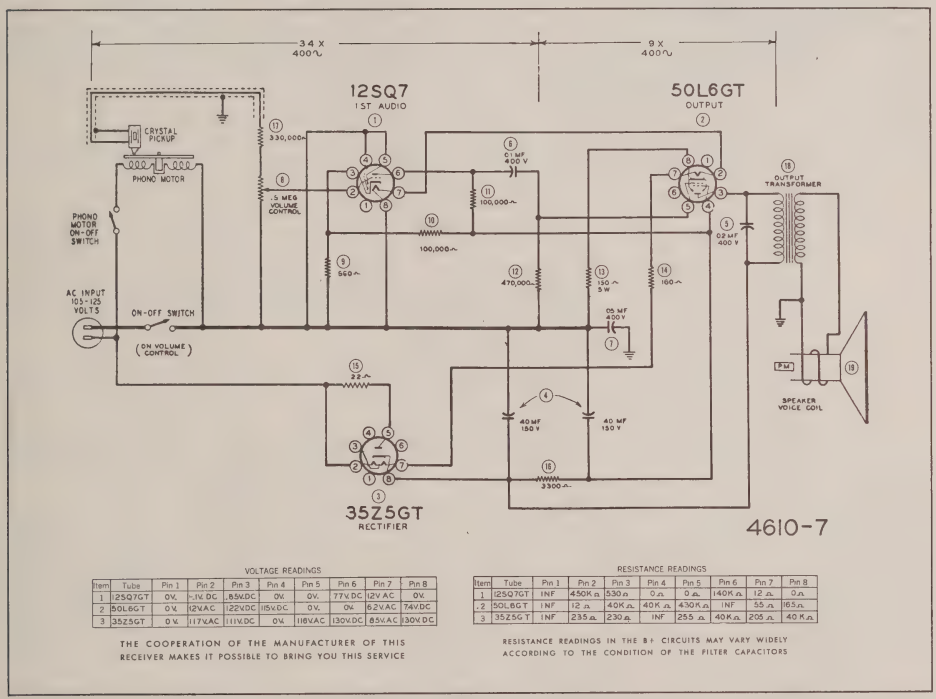
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to ground.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

BELMONT MODEL 3AW7

| | |
|---|---|
| TRADE NAME | Belmont, Model 3AW7 |
| MANUFACTURER | Belmont Radio Corp., 5921 W. Dickens Ave., Chicago, Ill. |
| TYPE SET | AC Operated Portable Phonograph with 3 Tube Amplifier and Speaker |
| TUBES (THREE) | Types, 12SQ7 1st Audio, 50L6GT Power Output, 35Z5GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC RATING .240 Amps. @ 117 Volts AC |




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SQ7GT | 0V. | -1.1V. DC | .85VDC | 0V. | 0V. | 77V.DC | 12V AC | 0V. |
| 2 | 50L6GT | 0 V. | 12VAC | 122VDC | 115VDC | 0V. | 0V. | 6.2VAC | 74VDC |
| 3 | 35Z5GT | 0 V. | 117VAC | 111V.DC | 0V. | 116VAC | 130VDC | 85V.AC | 130VDC |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SQ7GT | INF | 450K Ω | 530 Ω | 0 Ω | 0 Ω | 140K Ω | 12 Ω | 0 Ω |
| 2 | 50L6GT | INF | 12 Ω | 40K Ω | 40K Ω | 430K Ω | INF | 55 Ω | 165 Ω |
| 3 | 35Z5GT | INF | 235 Ω | 230 Ω | INF | 255 Ω | 40K Ω | 205 Ω | 40 K Ω |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | 1st Audio | 12SQ7GT | 12SQ7GT | 8Q | |
| 2 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 3 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: BELMONT PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 4A | 40 | 150 | A-8C11415-1 | DY-2x40-150 | EL-25 | AF88D | UP6BJ34 | FP214 | Filter - Red * |
| B | 40 | 150 | | | | | | | " - Blue |
| 4A | 40 | 150 | A-8C-11119 | DY-2x40-150 | EL-25 | AF88D | UP6BJ34 | FP214 | ■ Filter * |
| B | 40 | 150 | | | | | | | ▲ " |
| 5 | .02 | 400 | C-8D-10774 | S-4-02 | TC-12 | 434-02 | DT4S2 | TP423 | Output Plate Bypass |
| 6 | .01 | 400 | C-8D-10761 | S-4-01 | TC-11 | 434-01 | DT4S1 | TP421 | Audio Coupling |
| 7 | .05 | 400 | C-8D-10813 | S-4-05 | TC-15 | 434-05 | DT4S5 | TP426 | Line Isolation |

*Either filter may be used.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BELMONT PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 8A | 500KΩ | 1 | A-10A-11377 | MK401 | DIS-133 | AM-60-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KSS-3 | Attach to 8A per instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 9 | 560Ω | ½ | C-9B1-59 | BTS-560 | Grn.-Blue-Br. 1st AF Cathode |
| 10 | 100KΩ | ½ | C-9B1-86 | BTS-100K | Br.-Blk.-Yl. Bleeder |
| 11 | 100KΩ | ½ | C-9B1-25 | BTS-100K | Br.-Blk.-Yl. 1st AF Plate Load |
| 12 | 470KΩ | ½ | C-9B1-29 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 13 | 150Ω | 5 | C-9B1-8 | BW-5-150 | Br.-Grn.-Br. Output Cathode |
| 14 | 160Ω | 5 | A-8C-11355 | AB-150 | Line Dropping |
| 15 | 22Ω | ½ | C-9B1-3 | BW-½-22 | Red-Red-Blk. Rectifier ballast |
| 16 | 3300Ω | ½ | C-9B1-16 | BTS-3300 | Or.-Or.-Red Filter |
| 17 | 330KΩ | ½ | C-9B1-28 | BTS-330K | Or.-Or.-Yl. Series Phono. |

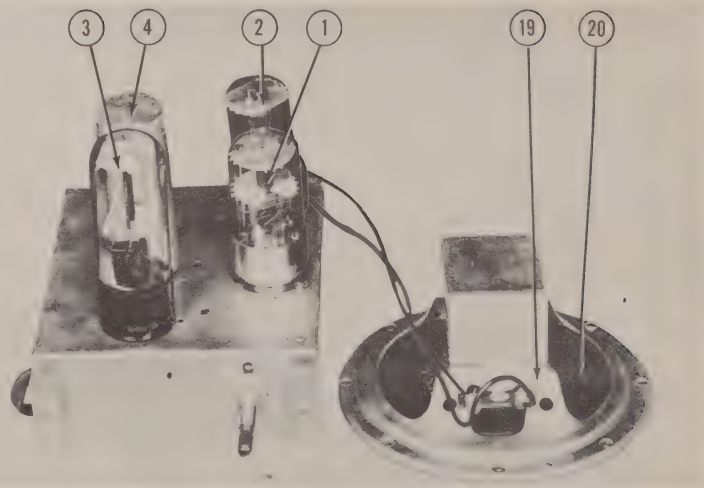
## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 18 | 2300Ω | 3.4Ω | 190Ω | .7Ω | B-12C-10074-3 | A-3378 | T22S45 | | |

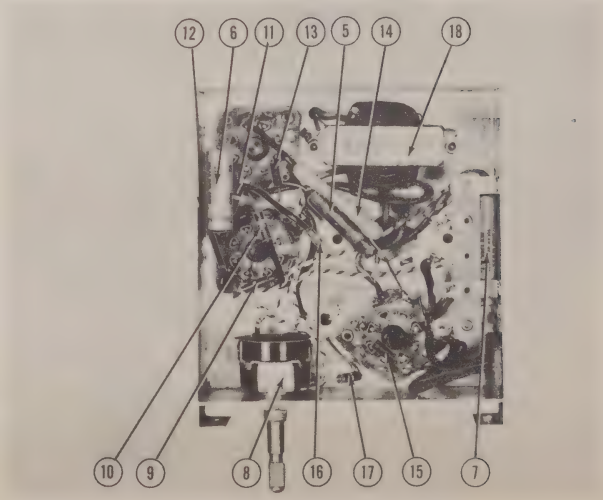
## SPEAKER

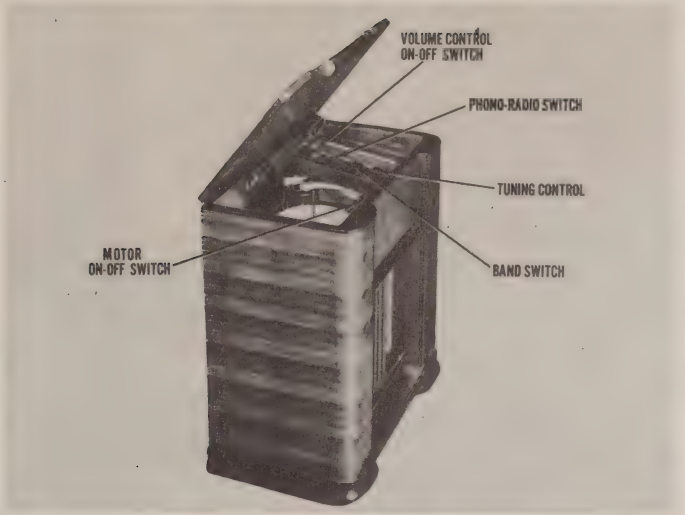
| ITEM No. | RATINGS | | REPLACEMENT DATA: BELMONT PART No. | REPLACEMENT DATA: JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-107 | | |
| 19A | PM | 3.4Ω | B-18A-10592 | Mod. P5-V | | |
| B | 6"X4" | | B-18A-11331 | | | Alternate Speaker |
| | CONE DIA. | VC DIA. | | | | |
| 20 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER. | | | |

## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW






BENDIX MODEL 736-B

| | |
|---|---|
| **TRADE NAME** | Bendix Model 736-B |
| **MANUFACTURER** | Bendix Radio, Div. of Bendix Aviation Corp., Baltimore, Md. |
| **TYPE SET** | AC Operated Three Band Automatic Radio - Phonograph Combination Superheterodyne Receiver - Self Contained Loop Antenna and Push Button Tuning |
| **TUBES** (SEVEN) | Types, 6SK7 RF Amp., 6SA7 Converter, 6SF7 IF Amp.-Det-AVC, 6SC7 AF-Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier. |
| **POWER SUPPLY** | 105 - 125 Volts AC RATING .585 Amp. @ 117 Volts AC |
| **TUNING RANGE—BROADCAST** | 540-1620KC **SHORT WAVE** 6.0-12.0 MC, 11.3-22.0MC |

**ALIGNMENT INSTRUCTIONS**

Reference marks referred to below are found along bottom of dial backplate. Set left edge of pointer at these marks. Turn variable fully closed and set left edge of pointer at REF. mark at bottom of back plate. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| .01 MFD. | High side to pin #2 (grid) of 6SF7. Low side to chassis. | 455KC | BC | Low freq. end. (Variable fully meshed) | Across voice coil | A1,A2. | Adjust for maximum output. |
| .01 MFD. | High side to pin #8 (grid) of 6SA7. Low side to chassis. | " | " | " | " | A3,A4. | " |
| 200 MMF. | High side to ext. Ant. Low side to chassis. | 1450KC | " | Mark D | " | A5,A6, A7. | Adjust for maximum output in order given. |
| 400 OHMS in series with .01 MFD. | " | 12.0MC | SW#1 | Mark E | " | A8 | Adjust for maximum output. |
| 400 OHMS in series with .01 MFD. | " | " | " | " | " | A9 | Rock variable and adjust for maximum output. |
| 400 OHMS in series with .01 MFD. | " | 22.0MC | SW#2 | Mark F | " | A10 | Adjust for maximum output. |
| 400 OHMS in series with .01 MFD. | " | " | " | " | " | A11 | Rock variable and adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: BENDIX PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 6SK7 | 6SK7 | 8N | |
| 2 | Converter | 6SA7 | 6SA7 | 8R | |
| 3 | IF Amp.-Det | 6SF7 | 6SF7 | 7AZ | |
| 4 | 1st AF PH. INV. | 6SC7 | 6SC7 | 8S | |
| 5 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 6 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 7 | Rectifier | 5Y3GT | 5Y3GT | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: BENDIX PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 8A | 20 | 450 | CE2A01 | DY-312 | EL-220 | AF44J | UP6BJ38 | FP234 | ■ Filter |
| B | 20 | 450 | | | | | | | ▲ " |
| 9 | .005 | 600 | CP6T18 | S-4-005 | TC-25 | 484-005 | DT6D5 | TP408 | Line Bypass |
| 10 | .005 | 600 | CP6T18 | S-4-005 | TC-25 | 484-005 | DT6D5 | TP408 | " " |
| 11 | .2 | 200 | CP2T56 | S-4-2 | TC-2 | 484-.2 | DT4P2 | TP428 | Feedback |
| 12 | .01 | 600 | CP6T31 | S-4-01 | TC-11 | 484-01 | DT6S1 | TP410 | Output Plate Bypass |
| 13 | .05 | 400 | CP4T40 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | RF Bypass Pwr. Supp. |
| 14 | .01 | 400 | CP4T31 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 15 | .01 | 400 | CP4T31 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | " " |
| 16 | .01 | 400 | CP4T31 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | " " |
| 17 | .02 | 400 | CP4T34 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Audio Cath. Bypass |
| 18 | .05 | 400 | CP4T40 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Screen Bypass |
| 19 | .05 | 400 | CP4T40 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 20 | .05 | 400 | CP4T40 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | " " |
| 21 | .02 | 400 | CP4T34 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | RF Cath. Bypass |
| 22 | 1000 | 300 | CM5A46 | MO.3-21 | 1FM-21 | 1467-001 | 1W5D1 | MC255 | Tone Compensation |
| 23 | 220 | 500 | CM5A30 | MO.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | MC237 | Audio Plate Bypass |
| 24 | 47 | 500 | CM6A14 | MO.5-45 | 1FM-45 | 1468-00005 | 5W5C5 | MC225 | Osc. Grid Capacitor |
| 25 | 3.3 | 500 | CC9A16 | | | | | | RF Coupling Cer. |
| 26 | 47 | 500 | CM5A14 | MO.5-45 | 1FM-45 | 1468-00005 | 5W5C5 | MC225 | RF Pri. Shunt |
| 27 | 2000 | 300 | | MW.5-22 | 1FM-22 | 1467-002 | 1W5D2 | MC257 | RF Coupling |
| 28 | 470 | 500 | CM5A38 | MO.5-35 | 1FM-35 | 1468-0005 | 5W5T5 | MC245 | " " |
| 29 | 220 | 500 | | MO.5-32 | 1FM-22 | 1468-0002 | 5W5T2 | MC237 | Loop Pri. Shunt |
| 30 | 10 | | CC9A01 | | | | | | Fixed Trimmer Cer. |
| 31 | 360 | 500 | CM8S47 | | | | | | Fixed Tuning P.B. |
| 75 | 470 | 500 | CM8S50 | | | | | | Fixed Padder |

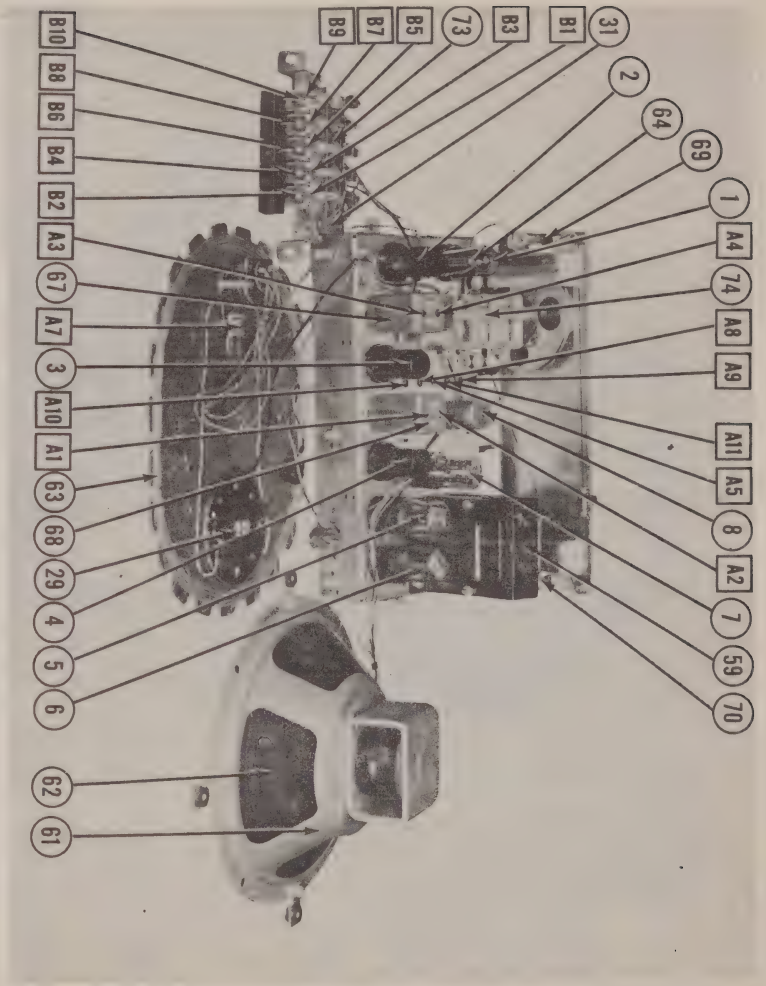
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BENDIX PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 32A | 1 Meg. | 1 | RV4S04 | MK402 | D13-137 | M-63-4 | Volume Control. |
| B | Shaft | | Not Req. | Not Req. | A | Not Req. | Attach to 32A per Instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BENDIX PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 33 | 1 Meg. | 1/4 | RC1H62 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 34 | 220Ω | 1/4 | RC1G16 | BW-½-220 | Red-Red-Br. RF Cathode |
| 35 | 4700Ω | 1/4 | RC1G32 | BTS-4700 | Yl.-Vi.-Red " Plate Load |
| 36 | 470KΩ | 1/4 | RC1H58 | BTS-470K | Yl.-Vi.-Yl. AVC Network |
| 37 | 22KΩ | 1/4 | RC1G40 | BTS-22K | Red-Red-Or. Oscillator Grid |
| 38 | 10 Meg. | 1/4 | RC1H74 | BTS-10 Meg. | Br.-Blk.-Blue AVC Network |
| 39 | 10Ω | 1/4 | RC1H00 | BW-½-10 | Br.-Blk.-Blk. Parasitic Suppressor |
| 40 | 47KΩ | 1/4 | RC1G44 | BTS-47K | Yl.-Vi.-Or. Converter Grid Load |
| 41 | 470Ω | 1/4 | RC1G20 | BTS-470 | Yl.-Vi.-Br. Oscillator Cathode Shunt |
| 42 | 470Ω | 1/4 | RC1G20 | BTS-470 | Yl.-Vi.-Br. Oscillator Cathode Shunt |
| 43 | 1 Meg. | 1/4 | RC1H62 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | BENDIX PART No. | IRC PART No. | |
| 44 | 220KΩ | 1/4 | RC1G54 | BTS-220K | Red-Red-Yl. Diode Load |
| 45 | 220KΩ | 1/4 | RC1G54 | BTS-220K | Red-Red-Yl. IF Cathode |
| 46 | 2200Ω | 1/4 | RC1G28 | BTS-2200 | Red-Red-Red 1st AF Cathode |
| 47 | 100KΩ | 1/4 | RC1H51 | BTS-100K | Br.-Blk.-Yl. Series Phono |
| 48 | 470KΩ | 1/4 | RC1H58 | BTS-470K | Yl.-Vi.-Yl. Phono Shunt |
| 49 | 470Ω | 1/4 | RC1G20 | BTS-470 | Yl.-Vi.-Br. Tone Compensation |
| 50 | 4700Ω | 1/4 | RC1G32 | BTS-4700 | Yl.-Vi.-Red " " |
| 51 | 22KΩ | 1/4 | RC1G40 | BTS-22K | Red-Red-Or. " " |
| 52 | 220KΩ | 1/4 | RC1G54 | BTS-220K | Red-Red-Yl. Phase Inverter Plate Load |
| 53 | 220KΩ | 1/4 | RC1G54 | BTS-220K | Red-Red-Yl. " " " " |
| 54 | 470KΩ | 1/4 | RC1H58 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 55 | 12KΩ | 1/4 | RC1G37 | BTS-12K | Br.-Red-Or. Phase Inverter Grid |
| 56 | 470KΩ | 1/4 | RC1H58 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 57 | 150Ω | 1 | RW1B14 | BW-1-150 | Br.-Grn.-Br. " Cathode |
| 58 | 10KΩ | 2 | RC4G36 | BT-2-10K | Br.-Blk.-Or. Voltage Dropping |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | BENDIX PART No. | STANCOR PART No. | THORDARSON PART No. | |
| 59 | 117V AC @.585A | 590V CT @.070A | 5.1V AC @1.9A | 6.4V AC @2.5A | TPOF01 | P-6312 + | T22R31 | + Use universal mounting brackets. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | BENDIX PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 60 | 10000Ω CT | 3.7Ω | 380Ω CT | .3Ω | TA0005 | A-3824 | T22S56 | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | BENDIX PART No. | JENSEN PART No. | | |
| | FIELD RES. | VC IMP. | | ST-141 * | | * Shunt field coil with 1600Ω 10 watt resistor. |
| 61 | 700Ω | 3.7Ω | SE0R00 | Mod.G10-8S | | Code 285 |
| | CONE DIA. | VC DIA. | CS0R01 | | | |
| 62 | 9½" | 1" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. ALTERNATE CONE #CS0R00 CODE 191 | | | |

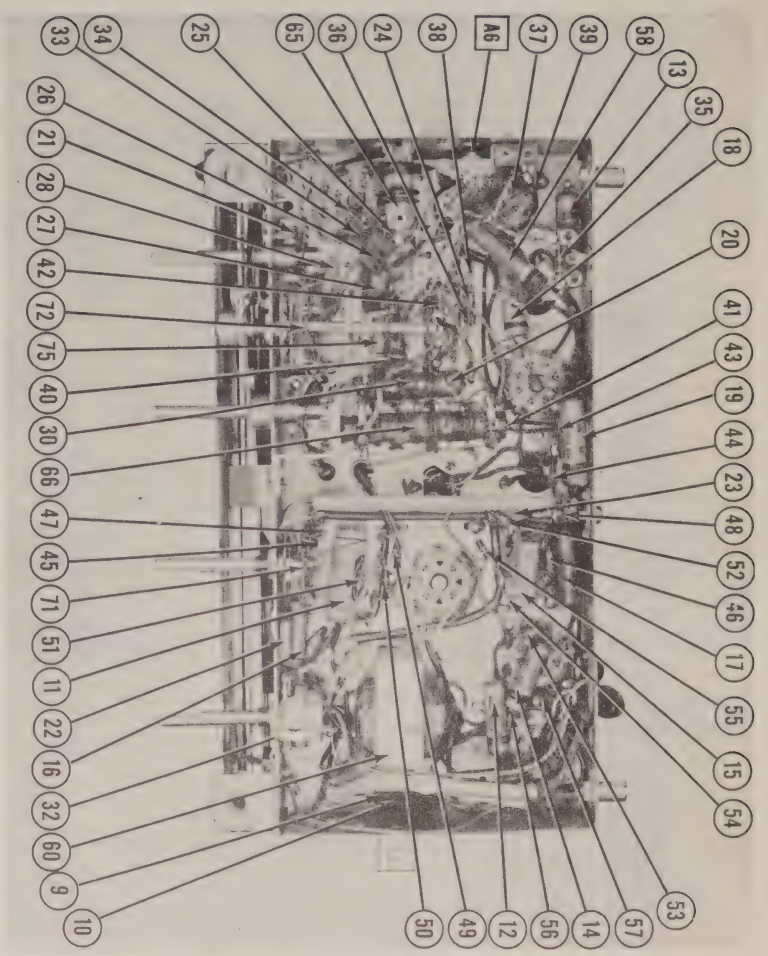
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | BENDIX PART No. | MEISSNER PART No. | |
| 63 | Loop Ant. | 27Ω | 1.5Ω | AL0Z02 | | |
| 64A | SW Ant. Coil B2 | 1.5Ω | 0Ω | TR7L00 | | Items 64A, 64B on same form. |
| 64B | SW Ant. Coil B3 | 0Ω | 0Ω | | | |
| 65 | BC RF Coil | 59Ω | 3.7Ω | TR6L04 | | |
| 66A | BC Osc. Coil | | 5Ω | L07J00 | | Items 66A, 66B, 66C wound on same form. |
| 66B | SW Osc. Coil B2 | | .1Ω | | | |
| 66C | SW Osc. Coil B3 | | 0Ω | | | |
| 67 | Input IF | 23Ω | 23Ω | TI0C04 | 16-6658 | |
| 68 | Output IF | 20.5Ω | | TI0D05 | 16-6670 | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | BENDIX PART No. | | |
| 69 | Bayonet | 6-8 | 0.25 | Blue | | | Type 44 |
| 70 | Bayonet | 6-8 | 0.25 | Blue | | | Type 44 |

# CHASSIS—BOTTOM VIEW



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

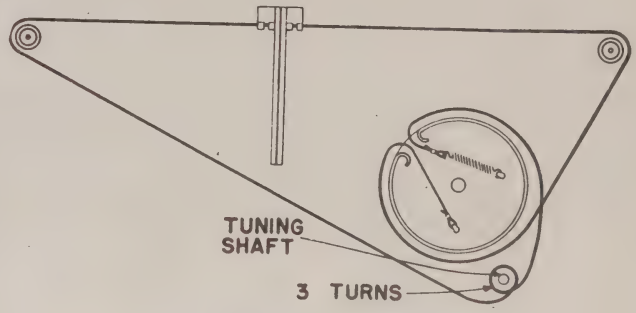
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SK7 | 0V. | 0V. | 0V. | -2V.DC | .95V.DC | 90V.DC | 6.4V.AC | 200V.DC |
| 2 | 6SA7 | 0V. | 0V. | 215V.DC | 90V.DC | -2.6V.DC | 0V. | 6.4V.AC | -3V.DC |
| 3 | 6SF7 | 0V. | -35V.DC | 0V. | 90V.DC | -35V.DC | 215V.DC | 0V. | 6.4V.AC |
| 4 | 6SC7 | 0V. | 125V.DC | 0V. | 0V. | 140V.DC | 1.65V.DC | 0V. | 6.4V.AC |
| 5 | 6V6GT | 0V. | 0V. | 210V.DC | 215V.DC | 0V. | 125V.DC | 6.4V.AC | 11V.DC |
| 6 | 6V6GT | 0V. | 0V. | 210V.DC | 215V.DC | 0V. | 0V. | 6.4V.AC | 11V.DC |
| 7 | 5Y3GT | 0V. | 285V.DC | 0V. | 295V.AC | 0V. | 295V.AC | 0V. | 285V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SK7 | 0Ω | 0Ω | 0Ω | 2.5MEG. | 220Ω | 180KΩ | .1Ω | 175KΩ |
| 2 | 6SA7 | 0Ω | 0Ω | 180KΩ | 180KΩ | 22KΩ | .5Ω | .1Ω | 1.4MEG. |
| 3 | 6SF7 | 0Ω | 1MEG. | 0Ω | 180KΩ | 245KΩ | 170KΩ | 0Ω | .1Ω |
| 4 | 6SC7 | 0Ω | 390KΩ | 12KΩ | 1MEG. | 390KΩ | 2.2KΩ | 0Ω | .1Ω |
| 5 | 6V6GT | 0Ω | 0Ω | 170KΩ | 170KΩ | 480KΩ | 390KΩ | .1Ω | 140Ω |
| 6 | 6V6GT | 0Ω | 0Ω | 170KΩ | 170KΩ | 470KΩ | INF. | .1Ω | 140Ω |
| 7 | 5Y3GT | 0Ω | 170KΩ | INF. | 135Ω | INF. | 125Ω | INF. | 170KΩ |

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



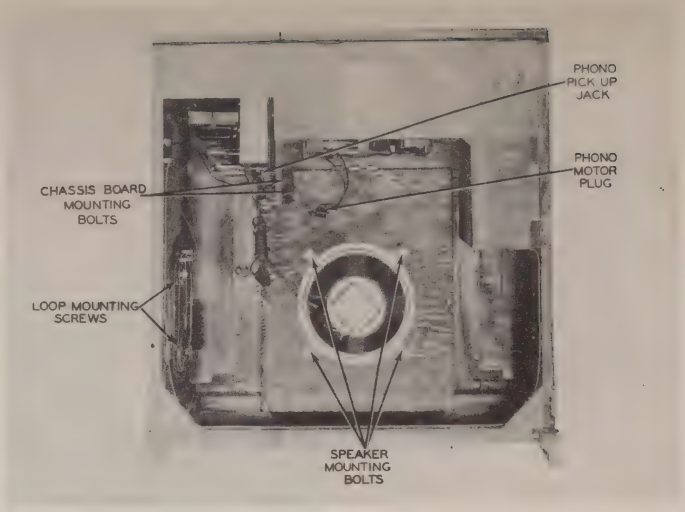

DIAL STRINGING DIAGRAM

## MISCELLANEOUS

| ITEM No. | PART NAME | BENDIX PART No. | NOTES |
|---|---|---|---|
| 71 | Switch | SR6C01 | Radio-Phono-Tone (6 Position) |
| 72 | Band Switch | SR4E00 | (4 position) |
| 73 | Pushbutton Assy. | AB0C00 | |
| 74 | 3 Gang Var. Cap | CV0C03 | |
| | Trimmer Strip | CT5A00 | A5, A8, A9, A10, A11 |
| A6 | Trimmer & Brkt. | CT1A00 | |
| B1 | Trimmer | CT1A05 | #1 Pushbutton (120-580 MMF) |
| B3,B5 | Trimmer | CT1A04 | #2 & #3 Pushbuttons (45-370 MMF) |
| B7 | Trimmer | CT1A03 | #4 Pushbutton (12-160 MMF) |
| B9 | Trimmer | CT1A02 | #5 Pushbutton (4-70 MMF) |
| B2 | Coil (Blue Dot) | LT0A00 | #1 Pushbutton (540-925KC) |
| B4,B6 | Coil (White Dot) | LT0A01 | #2 & #3 Pushbuttons (650-1250KC) |
| B8,B10 | Coil (Red Dot) | LT0A02 | #4 & #5 Pushbuttons (900-1600KC) |
| | Switch | SS5P00 | Pushbutton Switch |
| | Record Changer | | Bendix Model G-205 |

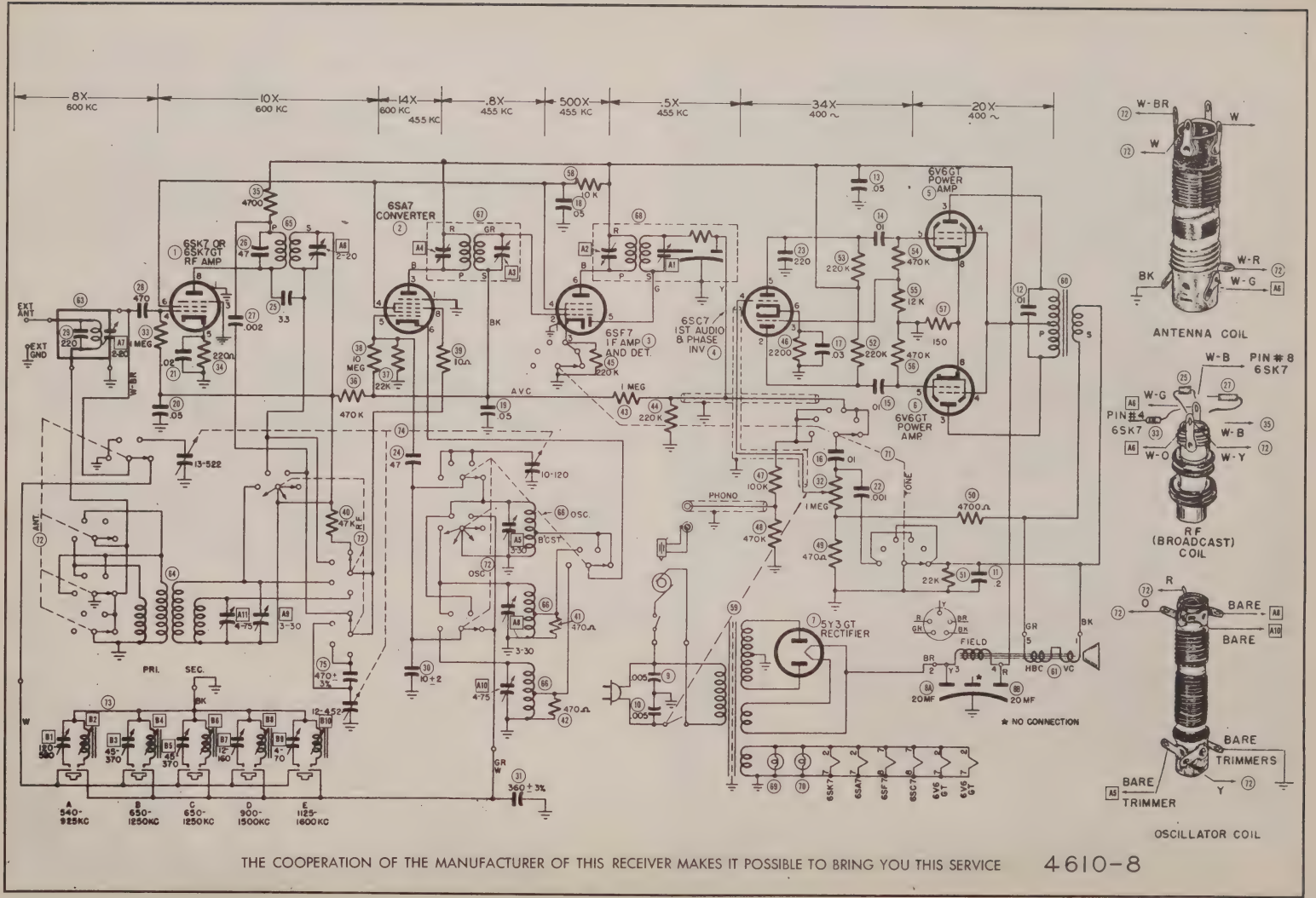
### DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs and felt washers.
2. Disconnect the phono-motor plug.
3. Disconnect the phono-pickup plug from chassis.
4. Disconnect the speaker receptacle from speaker plug.
5. Disconnect the loop antenna plug from loop antenna receptacle.
6. Disconnect external antenna lead and black ground lead from external and ground clips on cabinet.
7. Remove the two machine bolts, washers, and hex nuts holding chassis board to cabinet.
8. Remove one copper coated bolt from chassis board.
9. Remove two Phillips head machine bolts inside of record-changer compartment, holding chassis board to cabinet.
10. Disconnect the three push-button lead plugs from the push-button assembly receptacles.
11. Remove receiver chassis from cabinet.
12. Remove two machine bolts, lock washers, and washers from chassis board. Remove the one copper coated screw bolt holding chassis end bracket to chassis board.
13. Remove chassis from chassis board.
14. Remove the two hex nuts and lock washers holding the push-button assembly to cabinet. Remove push-button assembly.
15. Remove four hex nuts, lock washers, and washers from speaker posts. Remove speaker.
16. Remove four wood screws holding loop and remove loop.




### PUSHBUTTON ADJUSTMENTS

1. Turn band switch to full counter-clockwise position.
2. Remove buttons by pulling from shafts. Freq. range of each button is given under each button. From left to right freq. ranges are as follows: 540-925 KC, 650-1250 KC, 650-1250 KC, 900-1500 KC and 1125-1600 KC.
3. Make list of stations to be set up making sure each station will fall within range of button.
4. Push first shaft from left and adjust B1 for maximum reception of desired station.
5. Adjust B2 for maximum volume.
6. Follow same procedure for remaining buttons by adjusting B3, B5, B7 and B9 to tune in desired stations. Adjust B4, B6, B8 and B10 for maximum volume.
7. Repeat all adjustments for greater accuracy.




THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4610-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

CROSLEY MODEL 56PA

| | |
|---|---|
| TRADE NAME | Crosley Model 56PA, 56PB |
| MANUFACTURER | Crosley Corp., 1329 Arlington St., Cincinnati, Ohio |
| TYPE SET | Three Power Portable Superheterodyne Receiver - Self Contained Loop Antenna |
| TUBES (FIVE) | Types, 1R5 Converter, 1L4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output, 117Z6GT Rectifier. |
| POWER SUPPLY | 117 Volts AC-DC or 7½ Volt DC "A" Battery and 90 Volts DC "B" Battery |
| RATING | .180 Amps. @ 117 Volts AC or 51MA @ 7.8 Volts DC and 14MA @ 91 Volts DC |
| TUNING RANGE—BROADCAST | 530-1650KC |

ALIGNMENT INSTRUCTIONS

Use battery power for alignment whenever possible. If ac power is used, use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to stator of ant. section of variable. Low side to B-. | 455KC | High freq. end. (Variable fully open) | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If a-c power is used without an isolation transformer, reduce dummy ant. to 200 MMF. to reduce hum modulation. |
| 200 MMF. | High side to ext. ant. Low side to B-. | 1650KC | " | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | 1400KC | " | Tune for maximum output. | A6 | " " " " |

CROSLEY
MODEL 56PA, 56PB

CROSLEY
MODEL 56PA, 56PB

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | CROSLEY PART No. | STANDARD REPLACEMENT | | |
| 1 | Converter | 1R5 | 1R5 | 7AT | |
| 2 | IF Amp. | 1L4 | 1L4 | 6AR | |
| 3 | Det.-AVC-AF | 1S5 | 1S5 | 6AU | |
| 4 | Power Output | 3S4 | 3S4 | 7BA | |
| 5 | Rectifier | 117Z6GT | 117Z6GT | 7C | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | CROSLEY PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | |
| 6A | 40 | 150 | | M-2x40-150 | TA-440 | PRSA150-40-40 | BRD4415 | 2N511 | Filter |
| B | 40 | 150 | | | | | | | " |
| 7 | 1000 | 10 | | | UHC1012 | HCLV12-1000 | 2-BRH125 | | Filament Bypass |
| 8 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 9 | .01 | 200 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Pwr. Supp. Bypass |
| 10 | .002 | 200 | | S-6-002 | TC-22 | 484-002 | DT6D2 | TP405 | Output Plate Bypass |
| 11 | .22 | 200 | | S-4-2 | TC-2 | 484-.2 | DT4P2 | TP428 | Output Screen Bypass |
| 12 | .075 | 200 | | S-4-1 | TC-1 | 484-075 | DT4P1 | TP452 | Line Isolation |
| 13 | .003 | 600 | | S-6-003 | TC-23 | 684-003 | DT6D3 | TP406 | Audio Coupling |
| 14 | .022 | 200 | | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Audio Screen Bypass |
| 15 | .01 | 200 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Hum Feedback |
| 16 | .001 | 600 | | S-6-001 | TC-21 | 684-001 | DT6D1 | TP404 | Audio Coupling |
| 17 | .1 | 200 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | AVC Filter |
| 18 | .1 | 200 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Filament Bypass |
| 19 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S2 | TP426 | " |
| 20 | 220 | 500 | | MO.5-32 | 1FM-32 | 1468-0001 | 5W5T1 | MC237 | Audio Plate Bypass |
| 21 | 22 | 500 | | MO.5-425 | MS-42 | 1468-000025 | 5W5Q2 | MC220 | Fixed Trimmer |
| 22 | 75 | 500 | | " | 1FM-475 | 1468-000075 | 5W5Q7 | MC230 | Osc. Grid Capacitor |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CROSLEY PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 23A | 1 Meg. | 1 | B135353-C | MK402 | D13-137 | AM-33-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | RSL-3 | Attach to 23A per instructions |
| C | Switch | | " " | M27 | 42 | SW-A2 | " " " " " |

## RESISTORS

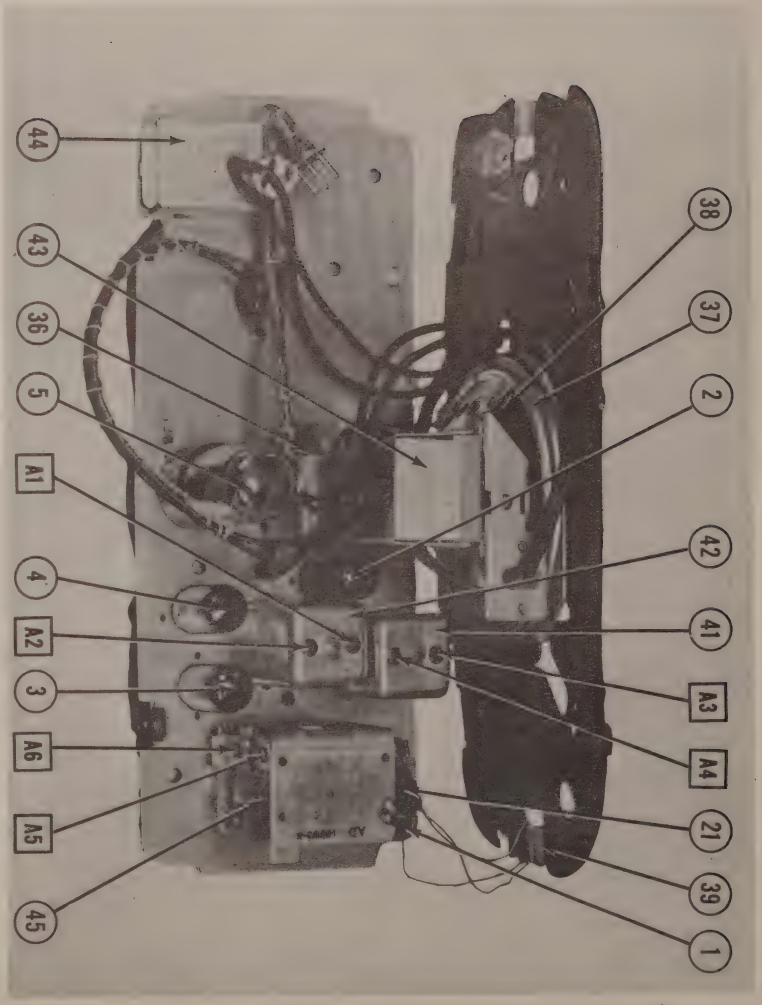
| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CROSLEY PART No. | IRC PART No. | |
| 24 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Oscillator Grid |
| 25 | 3.3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 26 | 22KΩ | ½ | | BTS-22K | Red-Red-Or. Screen Dropping |
| 27 | 10KΩ | ½ | | BTS-10K | Br.-Blk.-Or. 1st AF Grid Filter |
| 28 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 29 | 3.3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Or.-Grn. 1st AF Screen Dropping |
| 30 | 680KΩ | ½ | | BTS-680K | Blue-Gray-Yl. 1st AF Plate Load |
| 31 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. Output Grid |
| 32 | 18KΩ | ½ | | BTS-18K | Br.-Gray-Or. Output Screen Dropping |
| 33 | 470Ω | ½ | | BTS-470 | Yl.-Vi.-Br. Filament String |
| 34 | 1800Ω | 10 | | ABA-2000 | " " - See Note 1 |
| 35 | 820Ω | ½ | | BTS-1000 | Gray-Red-Br. Filter |

Note 1 - Set slider at 1800Ω from one end.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | CROSLEY PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 36 | 9500Ω | 4.1Ω | 700Ω | .5Ω | B-135878-B | A-3879* | T22S47* | | *Drill mounting holes and mount on chassis. |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: CROSLEY PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-113† | | |
| 37 | PM | 4.1Ω | 136156 | Mod. P4-X | | †Fabricate new mounting bracket. |
| | CONE DIA. | VC DIA. | | | | |
| 38 | 4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

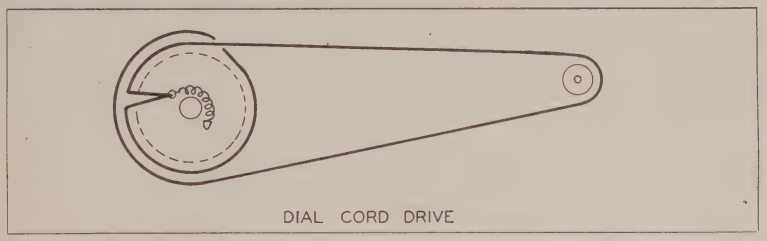
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: CROSLEY PART No. | MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 39 | Loop Ant. | .5Ω | 4Ω | | | |
| 40 | Osc. Coil | 3Ω | 8.5Ω | | 14-1040 | |
| 41 | Input IF | 8.5Ω | 14.5Ω | | 16-6666 | |
| 42 | Output IF | 6Ω | | | 16-6670 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | CROSLEY PART No. | NOTES |
|---|---|---|---|
| 43 | Batt-AC-DC SW | | |
| 44 | Interlock SW | | |
| 45 | 2 Gang Var. Cap. | | Ant. & Osc. Trimmers Included |
| | "A" Battery | CR90 | |
| | "B" " | CR77 | 2 used |

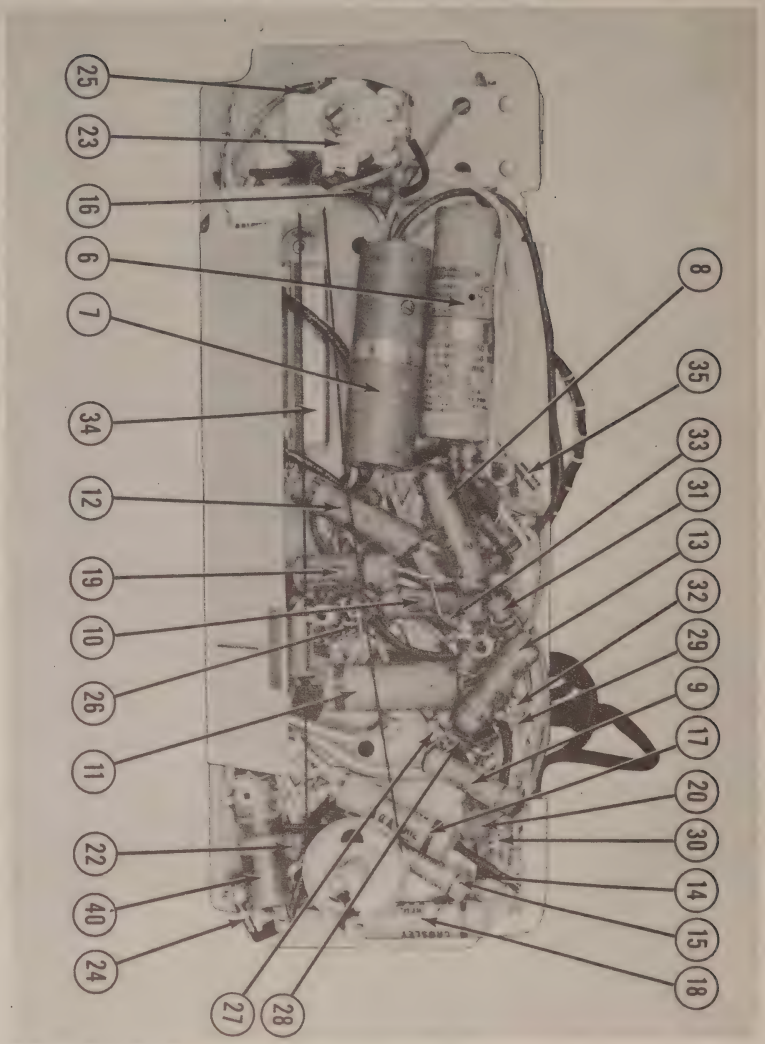
DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type knobs.
2. Remove two machine screws from bottom of the back half of the cabinet.
3. Loosen but do not remove the two Phillips head bolts on the front of the cabinet located in speaker grill below the dial.
4. Remove back half of chassis - DO NOT FORCE. If the halves do not separate easily, loosen the Phillips head bolts sufficiently to permit the halves to separate.
5. Unsolder lead to external antenna terminal lug.
6. Remove the four clip buttons holding the loop antenna to cabinet.
7. Now remove the two Phillips head bolts from front of cabinet.
8. Remove machine screw holding the chassis to front half of cabinet.
9. Remove chassis from other half of cabinet.
10. When servicing receiver make sure interlock switch is closed.



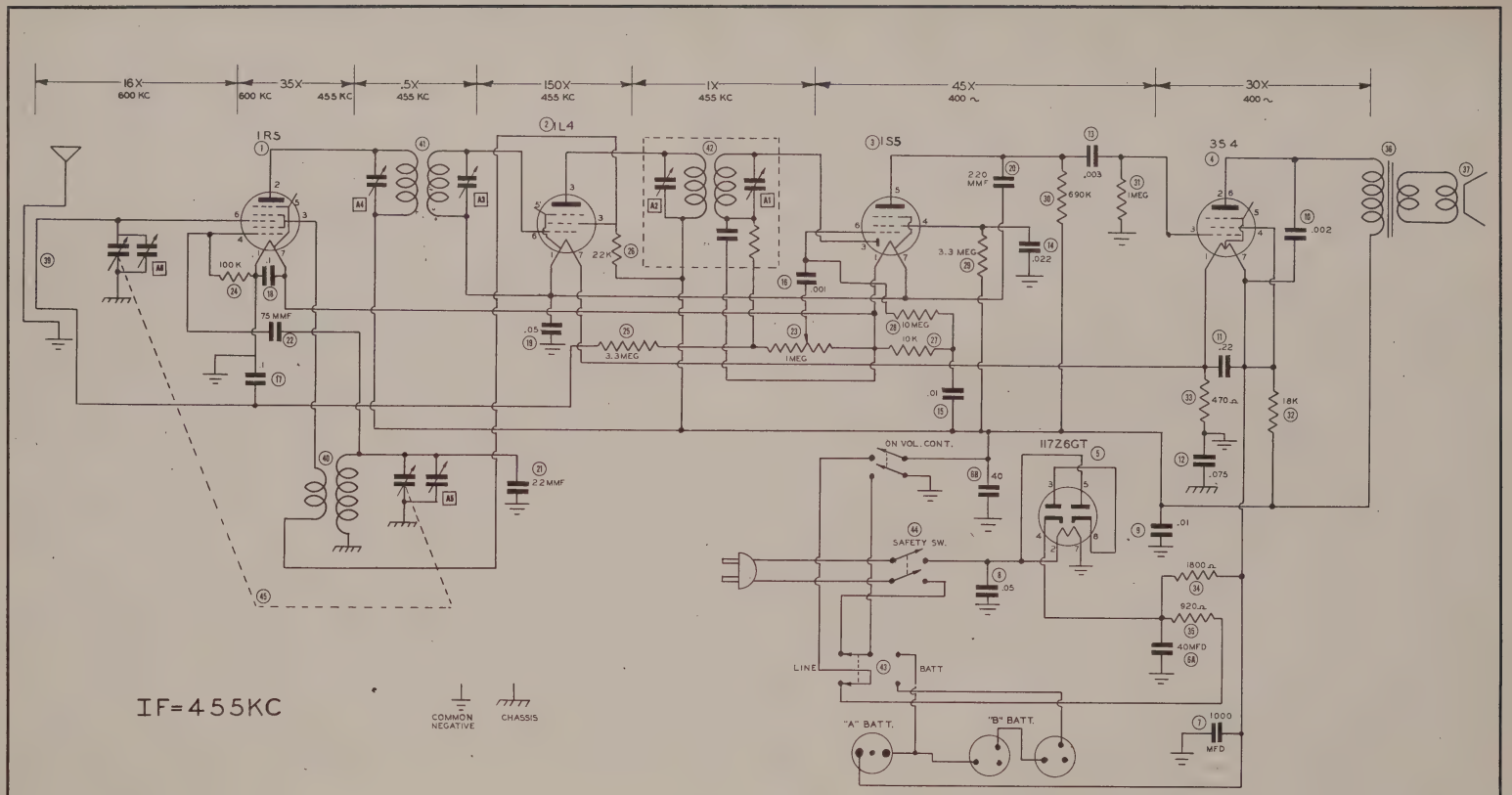
DIAL CORD DRIVE

## CHASSIS—BOTTOM VIEW






CROSLEY MODELS 56PA, 56PB




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0V. | 91V.DC | 50 V.DC | -9V.DC | 0V. | .1V.DC | 1.7 V.DC | |
| 2 | 1L4 | 3.1V.DC | 91V.DC | 50 V.DC | 91 V.DC | 3.1V.DC | 3.1V.DC | 4.4V.DC | |
| 3 | 1S5 | 1.7 V.DC | 1.6V.DC | .3 V.DC | 19.5V.DC | 85V.DC | 0V. | 3.1V.DC | |
| 4 | 3S4 | 4.4 V.DC | 85V.DC | 0V. | 68V.DC | 6V.DC | 85 V.DC | 7.4 V.DC | |
| 5 | 117Z6GT | 0V. | 117 V.AC | 88V.DC | 103V.DC | 117 V.AC | 91 V.DC | 0V. | 88V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | * | 2.4KΩ | 21KΩ | 100KΩ | * | 3.5MEGΩ | * | |
| 2 | 1L4 | * | 2.4KΩ | 21KΩ | 2.4KΩ | * | 40Ω | * | |
| 3 | 1S5 | * | 8.3 KΩ | 900KΩ | 2.9 MEGΩ | 710KΩ | 10 MEGΩ | * | |
| 4 | 3S4 | * | 2.9KΩ | 900KΩ | 19.5KΩ | * | 2.9KΩ | * | |
| 5 | 117Z6GT | INF. | 200Ω | 2.3KΩ | 1.6KΩ | 200Ω | 2.3KΩ | 0Ω | INF. |

*NOTE: DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

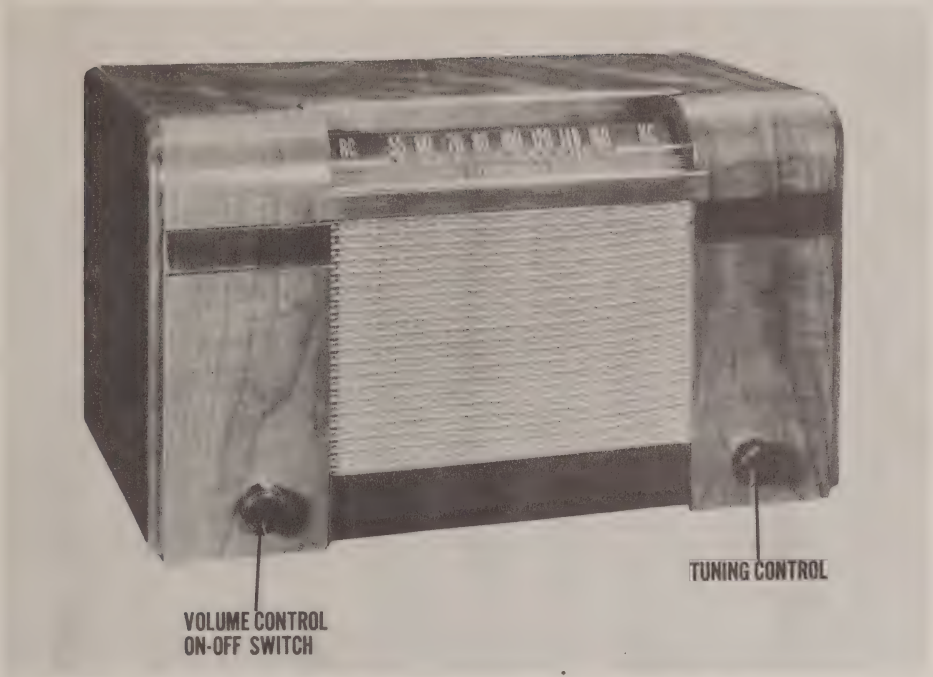
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-9

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC line to low side of volume control.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CORONADO
MODEL 43-6451




CORONADO
MODEL 43-6451

CORONADO MODEL 43-6451

| | |
|---|---|
| **TRADE NAME** | Coronado, Model 43-6451 |
| **MANUFACTURER** | Coronado, Minneapolis, Minn. - Los Angeles, Calif. |
| **TYPE SET** | Battery Operated Superheterodyne Receiver - Self Contained Loop Antenna |
| **TUBES** (FIVE) | Types, 1N5GT RF Amp., 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output. |
| **POWER SUPPLY** | 1½ Volt "A" Supply - 90 Volts "B" Supply in pack form |
| **TUNING RANGE—BROADCAST** | 535-1620KC RATING 300 MA @ 1.5VDC & 11.5MA @ 90VDC |

**ALIGNMENT INSTRUCTIONS**

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to top cap (grid) 1A7. Low side to chassis. | 455KC | High freq.end tuning gang at minimum capacity. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| .0001 MFD. | High side to ant. wire (green). Low side to chassis. | 1620KC | " | " | A5 | " " " " |
| .0001 MFD. | " | 1400KC | Tune in 1400 KC signal. | " | A6,A7. | " " " " |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | CORONADO PART No. | STANDARD REPLACEMENT | | |
| 1 | RF Amp. | 1N5GT | 1N5GT | 5Y | |
| 2 | Converter | 1A7GT | 1A7GT | 7Z | |
| 3 | IF Amp. | 1N5GT | 1N5GT | 5Y | |
| 4 | Det.-AVC-AF | 1H5GT | 1H5GT | 5Z | |
| 5 | Power Output | 3Q5GT | 3Q5GT | 7AP | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | CORONADO PART No. | MALLORY PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | |
| 6 | 16 | 150 | 25600 | TC45 | M-16-150 | UT-161 | PRS150-16 | BR1615 | Pwr. Supp. Bypass |
| 7 | .005 | 600 | 14061 | TP408 | S-6-005 | TC-25 | 684-005 | DT6D5 | 3Q5 Plate Bypass |
| 8 | .005 | 600 | 14061 | TP408 | S-6-005 | TC-25 | 684-005 | DT6D5 | Audio Coupling |
| 9 | .005 | 600 | 14061 | TP408 | S-6-005 | TC-25 | 684-005 | DT6D5 | " " |
| 10 | .05 | 200 | 8661 | TP426 | S-4-05 | TC-15 | 484-05 | DT4S5 | AVC Filter |
| 11 | .05 | 200 | 8661 | TP426 | S-4-05 | TC-15 | 484-05 | DT4S5 | " " |
| 12 | .01 | 400 | 8583 | TP421 | S-4-01 | TC-11 | 484-01 | DT4S1 | Ant. Coupling |
| 13 | .05 | 200 | 8661 | TP426 | S-4-05 | TC-15 | 484-05 | DT4S5 | Conv. Screen Bypass |
| 14 | 200 | 500 | 14370 | MC237 | MO.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | Audio Plate Bypass |
| 15 | 50 | 500 | 17091 | MC225 | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | Osc. Grid Capacitor |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CORONADO PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 16A | 500KΩ | 1 | 125367B | MR48 | D13-133 | M-60-Z | Volume Control |
| B | Shaft | | Not Req. | Not Req. | A | Not Req. | Attach to 16A per instructions |
| C | Switch | | " " | M27 | 42 | SW-A2 | " " " " " |

## RESISTORS

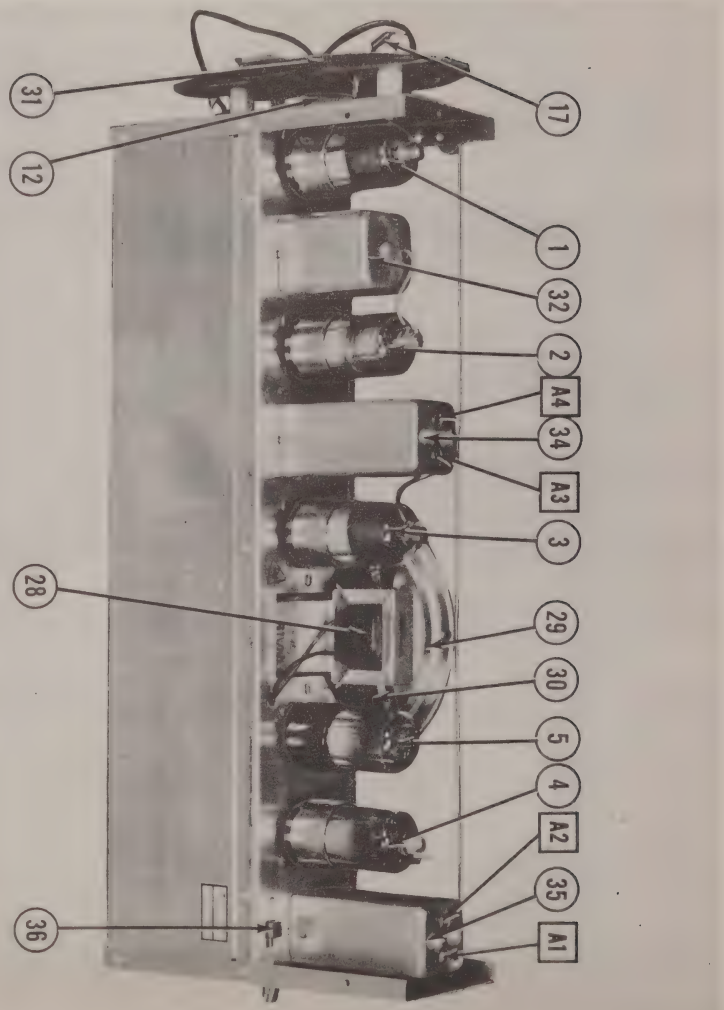
| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CORONADO PART No. | IRC PART No. | |
| 17 | 1000Ω | ½ | 25414 | BTS-1000 | Br.-Blk.-Red Antenna Loading |
| 18 | 1 Meg. | ½ | 8766 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 19 | 150KΩ | ½ | 14616 | BTS-150K | Br.-Grn.-Yl. Oscillator Grid |
| 20 | 33KΩ | ½ | 25144 | BTS-33K | Or.-Or.-Or. Converter Screen Dropping$ |
| 21 | 1 Meg. | ½ | 8766 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 22 | 15 Meg. | ½ | 14365 | BTS-15 Meg. | Br.-Grn.-Blue 1st AF Grid |
| 23 | 470KΩ | ½ | 25042 | BTS-470K | Yl.-Vi.-Yl. 1st AF Plate Load |
| 24 | 2.2 Meg. | ½ | 25134 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 25 | 15KΩ | ½ | 17164 | BTS-15K | Br.-Grn.-Or. Tone Compensation |
| 26 | .56Ω | ½ | 25163 | BW-½-.56 | Grn.-Blue-Silver Series Filament |
| 27 | 470Ω | ½ | 25085 | BTS-470 | Yl.-Vi.-Br. Bias |

$Some models use 68KΩ in this application. Replace with 33KΩ.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | CORONADO PART No. | STANCOR PART No. | THORDARSON PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 28 | 11000Ω | 3.1Ω | 480Ω | .5Ω | 25594 | A-3879* | T-22S47* | | *Bend mounting tabs down, file out slots and mount on original bracket. |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

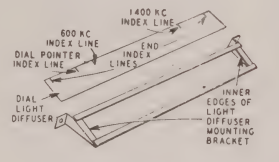
| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | CORONADO PART No. | JENSEN PART No. | | |
| | FIELD | VC IMP. | | ST-107† | | |
| 29 | PM | 3.1Ω | 25593 | Mod. P5-V | | †Drill new mounting holes |
| | CONE DIA. | VC DIA. | | | | |
| 30 | 4-5/8" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |

## R F COILS

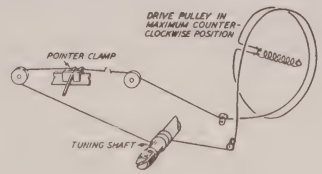
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | CORONADO PART No. | MEISSNER PART No. | |
| 31 | Loop Ant. | 1Ω | 2.4Ω | 25609 | | |
| 32 | RF Coil | 72Ω | 6Ω | 25597 | 14-7558 | |
| 33 | Osc. Coil | 8Ω | 3.5Ω | 25598 | 14-1040 | |
| 34 | Input IF | 17.5Ω | 17.5Ω | 25621 | 16-6658 | |
| 35 | Output IF | 17.5Ω | | 25622 | 16-6670 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | CORONADO PART No. | NOTES |
|---|---|---|---|
| 36 | Switch | 25319 | Economizer S.P.S.T. |
| 37 | Tuning Cap. | 25592 | 3 Gang Variable Cap. |
| | Dial Pointer | 25586 | |
| | Cabinet | 25591 | |
| | Knob | 25696 | Bakelite |
| | Battery Plug | 25612 | 4 Prong |

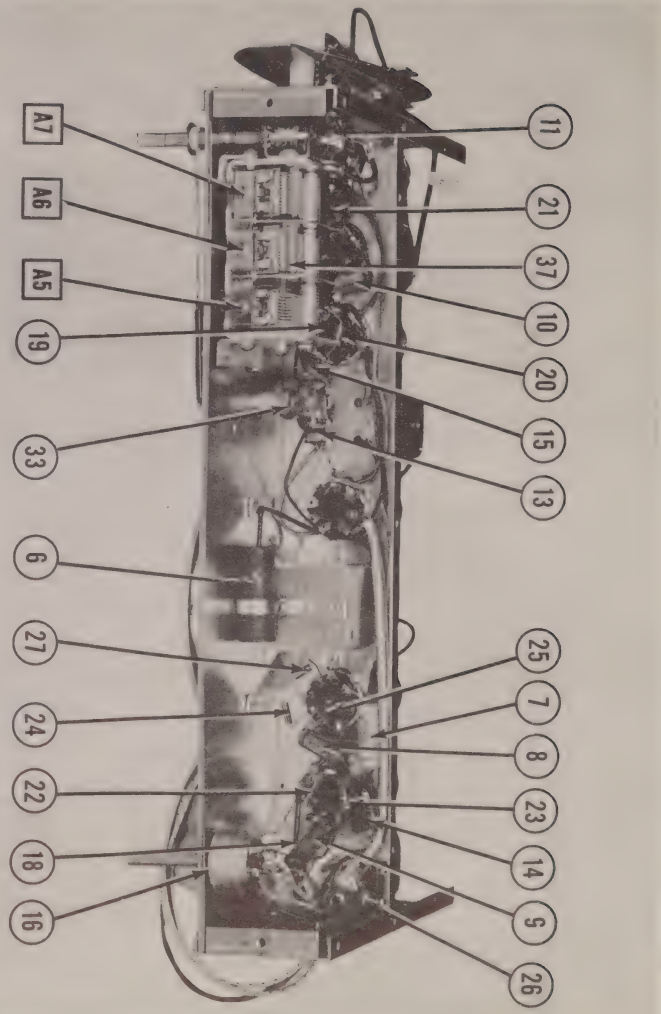

1400 KC INDEX LINE
600 KC INDEX LINE
DIAL POINTER INDEX LINE
END INDEX LINES
DIAL LIGHT DIFFUSER
INNER EDGES OF LIGHT DIFFUSER MOUNTING BRACKET

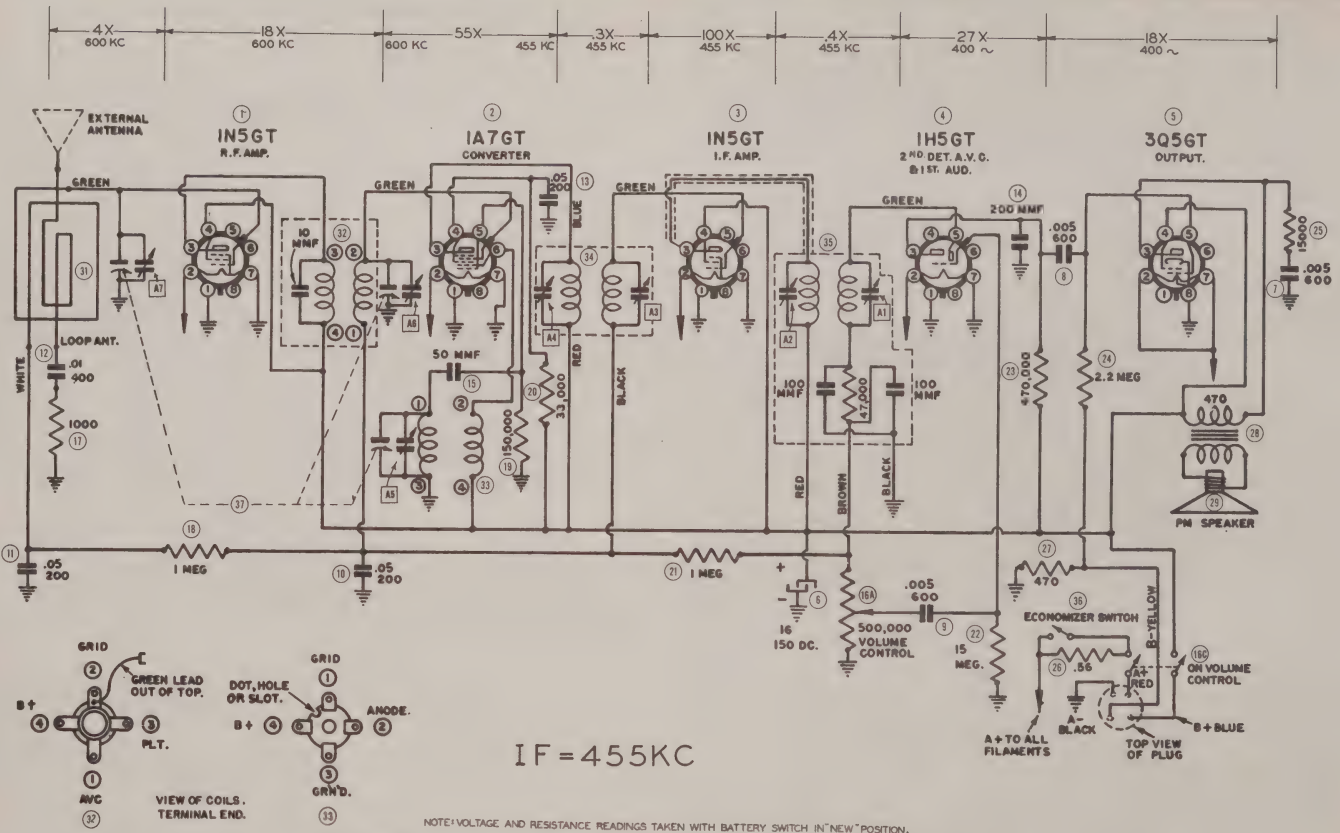
DIAL CALIBRATION




DIAL CORD DRIVE

# CHASSIS—BOTTOM VIEW






# IF = 455KC

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN WITH BATTERY SWITCH IN "NEW" POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1N5GT | 0V. | 145V.DC | 90V.DC | 90V.DC | 0V. | 0V. | 0V. | 0V. | 0V. |
| 2 | 1A7GT | 0V. | 145V.DC | 90V.DC | 55V.DC | -4.8V.DC | 90V.DC | 0V. | 90V.DC | 0V. |
| 3 | 1N5GT | 0V. | 145V.DC | 90V.DC | 90V.DC | 0V. | 0V. | 0V. | 0V. | 0V. |
| 4 | 1H5GT | 0V. | 145V.DC | 67V.DC | 90V.DC | -2V.DC | 0V. | 0V. | 0V. | 0V. |
| 5 | 3Q5GT | 87V.DC | 145V.DC | 87V.DC | 90V.DC | -8V.DC | -5.6V.DC | 145V.DC | 0V. | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1N5GT | 0Ω | * | 85KΩ | 85KΩ | 2.2MEG. | INF. | * | INF. | 2.2MEG. |
| 2 | 1A7GT | 0Ω | * | 85KΩ | 118KΩ | 162KΩ | 85KΩ | * | 85KΩ | 1.3MEG. |
| 3 | 1N5GT | 0Ω | * | 85KΩ | 85KΩ | INF. | INF. | * | 1.3MEG. | 1.3MEG. |
| 4 | 1H5GT | 0Ω | * | 555KΩ | 85KΩ | 500KΩ | 15MEG. | * | 1.3MEG. | 15MEG. |
| 5 | 3Q5GT | 97KΩ | * | 85KΩ | 85KΩ | 2.4MEG. | 395Ω | * | 0Ω | |

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

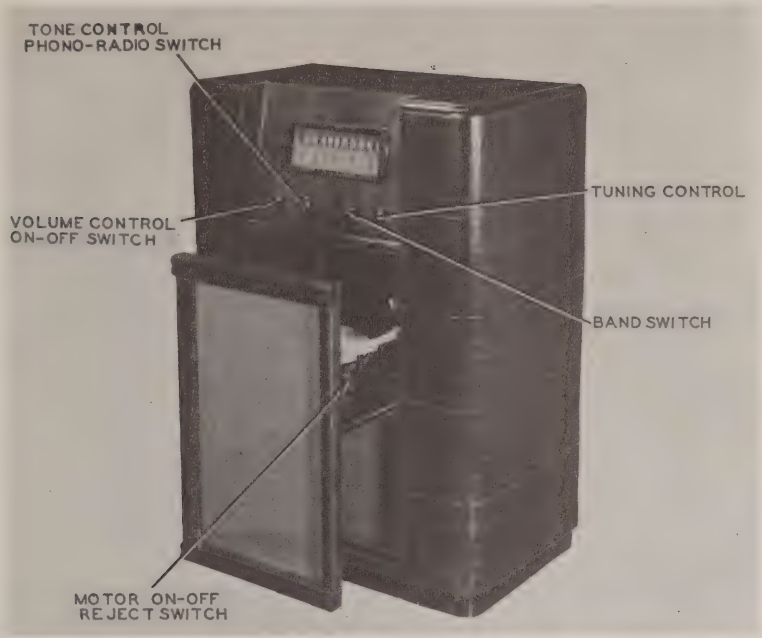
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B- CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is grounded.

1. DC Voltage measurements are at 20,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.




CORONADO MODEL 43-7601

| | | | |
|---|---|---|---|
| **TRADE NAME** | Coronado, Model 43-7601 | | |
| **MANUFACTURER** | Coronado, Minneapolis, Minn., & Los Angeles, Calif. | | |
| **TYPE SET** | AC Operated Radio-Phonograph Combination Superheterodyne Receiver - Self Contained Loop Antenna | | |
| **TUBES** (SIX) | Types, 6SA7 Conv., 6SK7GT IF Amp., 6SF7 2nd IF-2nd Det., 6SJ7 AF Amp., 6V6GT Power Output, 6X5GT Rectifier. | | |
| **POWER SUPPLY** | 105-125 Volts AC | RATING | .360 Amp. @ 117 Volts AC |
| **TUNING RANGE—BROADCAST** | 540-1600KC | **SHORT WAVE** | 9-15.5 MC |

**ALIGNMENT INSTRUCTIONS**

To set pointer, tune in 1400KC signal for maximum output. Attach pointer to drive cord at 1400KC mark on the dial scale. Volume control at maximum volume and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #8 of 6SA7. Low side to chassis. | 455KC | BC | High freq. end of dial. (Gang fully open) | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output |
| 100 MMF. | High side to ant. lead. Low side to chassis. | 1620KC | " | " | " | A5 | " " " " |
| 100 MMF. | " | 1400KC | " | Tune to maximum output. | " | A6 | " " " " |
| 100 MMF. | " | 600KC | " | " | " | A7 | Rock dial and adjust for maximum output. Recheck A5 at 1620KC and A6 at 1400KC. |
| 400 ohms | " | 15.6MC | SW | High freq. end of dial (Gang fully open) | " | A8 | Adjust for maximum output |
| 400 ohms | " | 14MC | " | Tune to maximum output. | " | A9 | Rock dial and adjust for maximum output. |
| 100 MMF. | " | 1400KC | BC | " | " | A6 | After chassis is re-assembled in cabinet. Adjust for maximum output. |

**HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana**

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: CORONADO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 6SA7 | 6SA7 | 8R | |
| 2 | IF Amp. | 6SK7GT | 6SK7GT | 8N | |
| 3 | 2nd Det. 2nd-IF | 6SF7 | 6SF7 | 7AZ | |
| 4 | AF Amp. | 6SJ7 | 6SJ7 | 8N | |
| 5 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 6 | Rectifier | 6X5GT | 6X5GT | 6S | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: CORONADO PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 40 | 450 | 45X346 | DY-314 | EL-4241† | A4444J1 | UP9DJ53 | FF346 | ▲ Filter |
| B | 40 | 450 | | | | | | | ■ " |
| C | 20 | 25 | | | | PRS25-25 | | | ▲ Cath. Bypass |
| 8 | .004 | 600 | | S-6-004 | TC-24 | 684-004 | DT6D4 | TP407 | 6V6 Plate Bypass |
| 9 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 10 | .004 | 400 | | S-6-004 | TC-24 | 484-004 | DT6D4 | TP407 | Tone Compensation |
| 11 | .025 | 400 | | | | 484-025 | DT4S25 | TP451 | Audio Plate Decoup. |
| 12 | .1 | 400 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Audio Screen Bypass |
| 13 | .005 | 400 | | S-6-005 | TC-25 | 484-005 | DT6D5 | TP408 | Audio Coupling |
| 14 | .04 | 400 | | S-6-04 | TC-14 | 484-04 | DT4S4 | TP425 | Tone Compensation |
| 15 | .04 | 400 | | S-6-04 | TC-14 | 484-04 | DT4S4 | TP425 | Screen Bypass |
| 16 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 17 | .04 | 400 | | S-6-04 | TC-14 | 484-04 | DT4S4 | TP425 | Conv. Screen Bypass |
| 18 | .0005 | 200 | | S-6-0005 | TC-35 | 1468-0005 | DT6T5 | TP403 | RF Coupling |
| 19 | .25 | 400 | | | | | | | RF Bypass Pwr. Supp. |
| 20 | 470 | 500 | | MO.5-35 | 1FM-35 | 1468-0005 | 5W5T5 | MC245 | Audio Plate Bypass |
| 21 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | IF Filter Diode |
| 22 | 68 | 500 | | MO5.5-47 | MS-47 | 1469-00007 | 5W5Q7 | MC230 | IF Filter Diode |
| 23 | 47 | 500 | | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Tone Compensation |
| 24 | 47 | 500 | | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | IF Coupling |
| 25 | 68 | 500 | | MO5.5-47 | MS-47 | 1469-00007 | 5W5Q7 | MC230 | Osc. Grid Capacitor |
| 26 | 286 | 500 | | | | | | | Fixed Padder |
| 27 | 40 | 500 | | MO5.5-44 | MS-44 | 1469-00004 | 5R5Q4 | MC5223 | Fixed Trimmer |
| 28 | 360 | 500 | | | | | | | Fixed Padder |
| 29 | 47 | 500 | | MO5.5-45 | MS-45 | 1469-00005 | 5R5Q5 | MC5225 | Fixed Trimmer |
| 30 | 270 | 500 | | MO.5-33 | MS-33 | 1468-0003 | 5W5T3 | MC241 | Loop Pri. Shunt |

†Parallel two sections to obtain desired capacity.

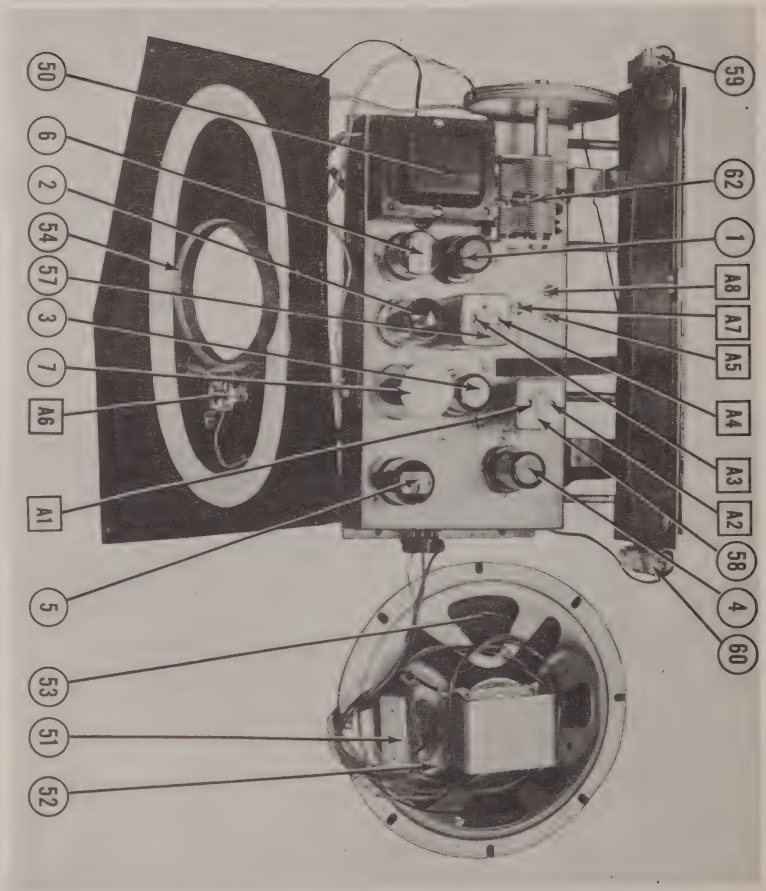
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CORONADO PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 31A | 500KΩ | 1 | 36X357 | TM227 | D13-133X | AT-32 | Volume Control |
| B | Shaft | | Not Req. | SS25 | E | KSS-3 | Attach to 31A per instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " |
| 32 | 3 Meg. | 1 | 40X227 | | | | Tone Control & Phono Switch |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: CORONADO PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 33 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 34 | 39KΩ | 1 | | BTA-39K | Or.-White-Or. Converter Screen Dropping |
| 35 | 39KΩ | ½ | | BTS-39K | Or.-White-Or. Oscillator Grid |
| 36 | 39KΩ | 1 | | BTA-39K | Or.-White-Or. IF Screen Dropping |
| 37 | 2200Ω | ½ | | BTS-2200 | Red-Red-Red 1st IF Plate Load |
| 38 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 2nd IF Grid |
| 39 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 40 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 41 | 15KΩ | ½ | | BTS-15K | Br.-Grn.-Or. Tone Compensation |
| 42 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 43 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. 1st AF Screen Dropping |
| 44 | 33KΩ | ½ | | BTS-33K | Or.-Or.-Or. 1st AF Plate Load |
| 45 | 82KΩ | ½ | | BTS-82K | Gray-Red-Or. 1st AF Plate Filter |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CORONADO PART No. | IRC PART No. | |
| 46 | 470KΩ | ½ | | BTS-½70K | Yl.-Vi.-Yl. Output Grid |
| 47 | 270Ω | 1 | | BW-1-270 | Red-Vi.-Yl. Output Cathode |
| 48 | 2Ω | ½ | | BW-½-2.2 | Series Pilot Light |
| 49 | 1800Ω | 2 | | BT-2-1800 | Br.-Gray-Red Filter |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | CORONADO PART No. | STANCOR PART No. | THORDARSON PART No. | |
| 50 | 117VAC @ .360A | 480VCT @ .055A | 6.2VAC @ 2.5A | | | P-8119† | T22R01 | †Drill new mount-holes. Add resistor to reduce plate voltage if necessary. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | CORONADO PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 51 | 6000Ω | 3.3Ω | 500Ω | 1.2Ω | Part of 12A433 | A-3823 | T22S47 | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | CORONADO PART No. | JENSEN PART No. | | |
| 52 | PM | 3.3Ω | 12A436 | ST-115 Mod. P8-V | | |
| | CONE DIA. | VC DIA. | | | | |
| 53 | 8" | 3/4" | NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | CORONADO PART No. | MEISSNER PART No. | |
| 54 | Loop Ant. | 29Ω | 1.5Ω | 9A1821-B | 14-1044 | Items 56A, 56B on same form |
| 55 | SW Ant. Coil | 1Ω | 0Ω | | | |
| 56A | BC Osc. Coil | 1Ω | 2Ω | | | |
| B | SW Osc. Coil | | 0Ω | | | |
| 57 | Input IF | 22Ω | 20.5Ω | 9A1814 | 14-3858 | |
| 58 | Output IF | 19.5Ω | 18.5Ω | 9A1815 | 14-3859 | |

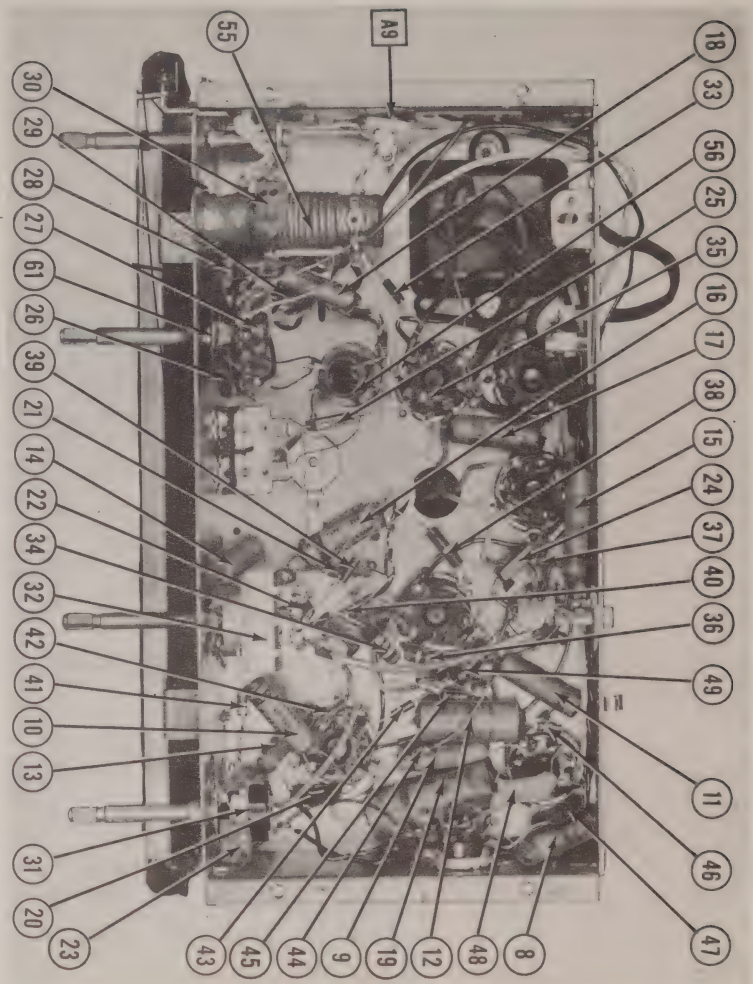
## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | CORONADO PART No. | | |
| 59 | Bayonet | 6-8 | .15 | Brown | | | Type 47 |
| 60 | Bayonet | 6-8 | .15 | Brown | | | Type 47 |

## MISCELLANEOUS

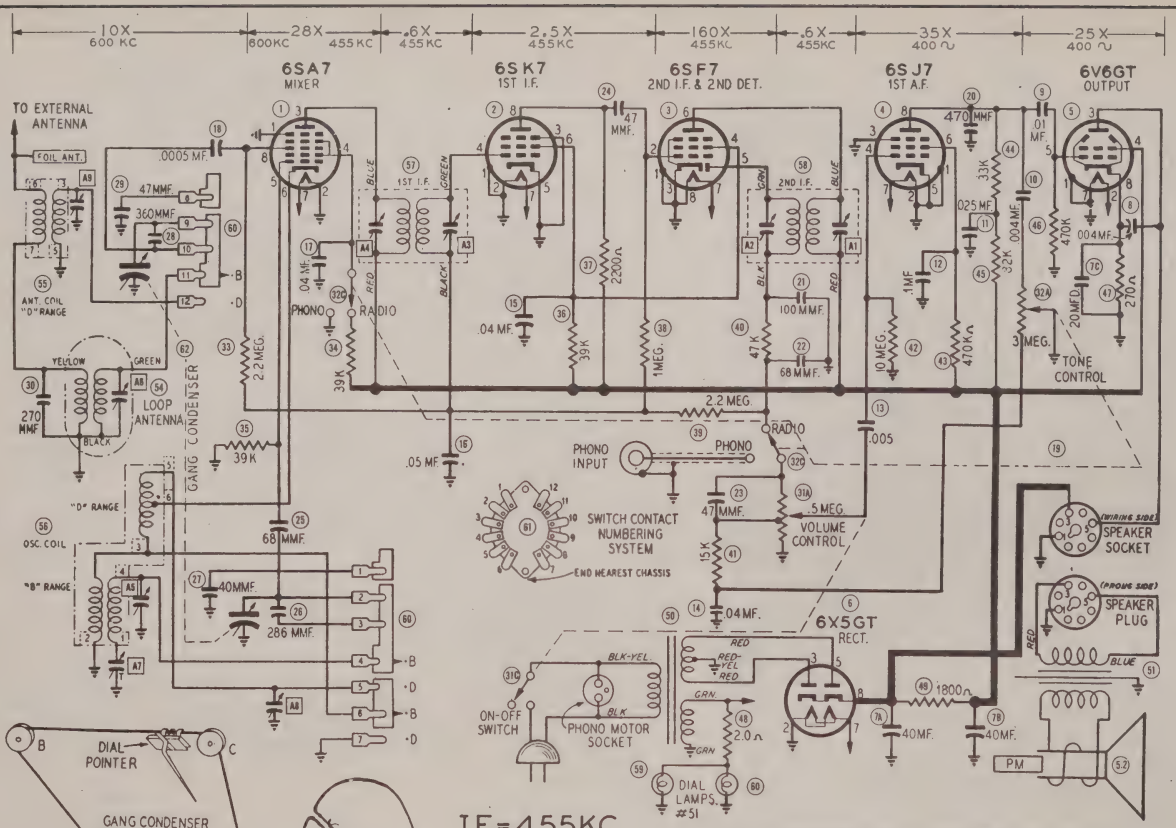
| ITEM No. | PART NAME | CORONADO PART No. | NOTES |
|---|---|---|---|
| 61 | Band Switch | | |
| 62 | 2 Gang Var. Cap | | |

## CHASSIS—BOTTOM VIEW






CORONADO MODEL 43-7601




4610-11

NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SA7 | 0V. | 0V. | 200V.DC | 63V.DC | -1.6V.DC | 0V. | 6.3V.AC | -.02VDC |
| 2 | 6SK7 | 0V. | 0V. | 0V. | -.25V.DC | 0V. | 60V.DC | 6.3V.AC | 183V.DC |
| 3 | 6SF7 | 0V. | -.3V.DC | 0V. | 60V.DC | -.35V.DC | 200V.DC | 6.3V.AC | 0V. |
| 4 | 6SJ7 | 0V. | 0V. | 0V. | -.4V.DC | 0V. | 31V.DC | 6.3V.AC | 65V.DC |
| 5 | 6V6GT | 0V. | 6.3V.AC | 230V.DC | 200V.DC | 0V. | 0V. | 0V. | 96V.DC |
| 6 | 6X5GT | 0V. | 0V. | 245V.AC | 0V. | 245V.AC | 0V. | 6.3V.AC | 247V.DC |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SA7 | 0Ω | 0Ω | 90KΩ | 129KΩ | 39KΩ | 1Ω | .1Ω | 4.5MEG |
| 2 | 6SK7 | 0Ω | 0Ω | 0Ω | 2.7MEG | 0Ω | 129KΩ | .1Ω | 92KΩ |
| 3 | 6SF7 | 0Ω | 4 MEG | 0Ω | 129KΩ | 460KΩ | 90KΩ | .1Ω | 0Ω |
| 4 | 6SJ7 | 0Ω | 0Ω | 0Ω | 11 MEG | 0Ω | 560KΩ | .1Ω | 205KΩ |
| 5 | 6V6GT | 0Ω | .1Ω | 90KΩ | 90KΩ | 470KΩ | INF | 0Ω | 260Ω |
| 6 | 6X5GT | INF | 0Ω | 183Ω | INF | 173Ω | INF | .1Ω | 90KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITATORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CORONADO
MODEL 43-8180

CORONADO
MODEL 43-8180

CORONADO MODEL 43-8180

| | |
|---|---|
| TRADE NAME | Coronado Model 43-8180 |
| MANUFACTURER | Coronado - Minneapolis, Minn. & Los Angeles, Calif. |
| TYPE SET | AC-DC Superheterodyne - Self Contained Loop Antenna |
| TUBES (FIVE) | Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 117 Volts AC-DC |
| TUNING RANGE—BROADCAST | 540-1630KC RATING .235 Amps. @ 117V AC |

**ALIGNMENT INSTRUCTIONS**

To set pointer, turn variable fully closed and set pointer horizontally. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to stator of rear section of variable. Low side of chassis. | 455KC | High freq. end. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| 250 MMF | High side to ext. ant. Low side to ext. gnd. | 1630KC | " | " | A5 | " " " " |
| 250 MMF | " | 1400KC | Tune for maximum output. | " | A6 | " " " " |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA CORONADO PART No. | REPLACEMENT DATA STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | | 12SA7GT | 8AD | |
| 2 | IF Amp. | | 12SK7GT | 8N | |
| 3 | Det.-AVC-AF | | 12SQ7GT | 8Q | |
| 4 | Power Output | | 50L6GT | 7AC | |
| 5 | Rectifier | | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA CORONADO PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 20 | 150 | 18-272 | M-20-150 | UT-201 | PRS150-20 | BR2015 | TC45 | Filter |
| 7 | 40 | 150 | 18-240 | M-40-150 | UT-401 | PRS150-40 | BR4015 | TC48 | " |
| 8 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 9 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Plate Bypass |
| 10 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 11 | .004 | 600 | | S-6-004 | TC-24 | 684-004 | DT6D4 | TP407 | " " |
| 12 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 13 | 250 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | Audio Plate Bypass |
| 14 | 100 | 500 | | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC245 | IF Bypass Vol. Cont. |
| 15 | 50 | 500 | | M0.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Osc. Grid Capacitor |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA CORONADO PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 16A | 500KΩ | 1 | 24-153 | MK401 | D13-133 | AM-60-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KSS-3 | Attach to 16A per instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " " |

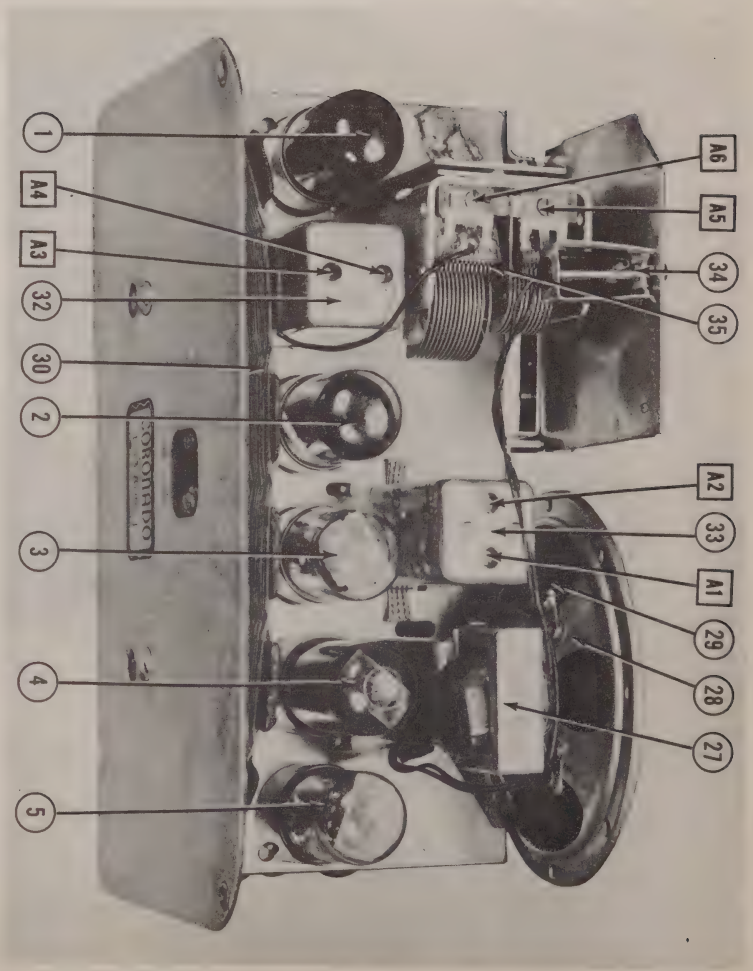
## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA CORONADO PART No. | REPLACEMENT DATA IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 17 | 22KΩ | ½ | | BTS-22K | Red-Red-Or. Oscillator Grid |
| 18 | 15 Meg. | ½ | | BTS-15 Meg. | Br.-Grn.-Grn. AVC Network |
| 19 | 2 Meg. | ½ | | BTS-2.2 Meg. | Red-Blk.-Grn. AVC Network |
| 20 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 21 | 200KΩ | ½ | | BTS-220K | Red-Blk.-Yl. 1st AF Plate |
| 22 | 500KΩ | ½ | | BTS-470K | Grn.-Blk.-Yl. Output Grid |
| 23 | 120Ω | ½ | | BW-½-120 | Br.-Red-Br. Output Cathode |
| 24 | 10KΩ | 1 | | BTS-10K | Br.-Blk.-Or. Voltage Divider Bias |
| 25 | 1000Ω | ½ | | BTS-1000 | Br.-Blk.-Red Filter |
| 26 | 27Ω | ½ | | BW-½-27 | Red-Vi.-Blk. Surge Limiter |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA CORONADO PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 27A | 2000Ω | 15Ω | 3.3Ω | .6Ω | A80-224 | A-3876* | T-22S45* | | *Bend mounting tabs down, file out slots and mount on original bracket. Used with B79-339 and B79-340. |
| B | | | | | A80-212 | | | | Used with B79-307A |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | CORONADO PART No. | JENSEN PART No. | | |
| 28A | PM | 3.3Ω | B79-340 | ST-105 Mod. P5-X | | |
| B | | | B79-339 | | | Alternate Speaker |
| C | | | B79-307A | | | " " |
| | CONE DIA. | VC DIA. | | | | |
| 29 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

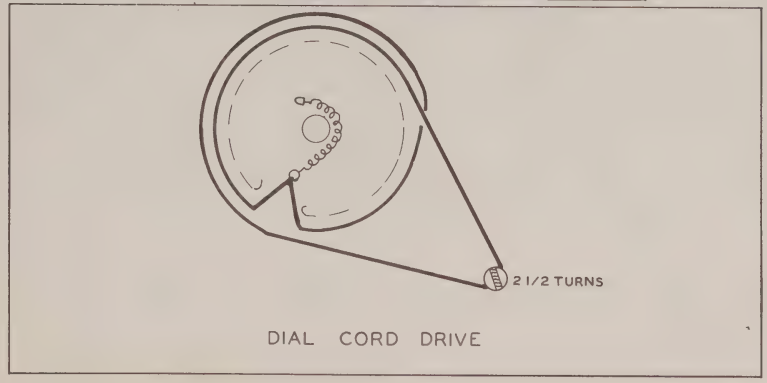
| ITEM No. | USE * | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | CORONADO PART No. | MEISSNER PART No. | |
| 30 | Loop Ant. | 0Ω | 1.5Ω | | | |
| 31 | Osc. Coil | .5Ω | 3.5Ω | 10-394 | 14-1040 | |
| 32 | Input IF | 39Ω | 39Ω | 10-369 | 16-6658 | |
| 33 | Output IF | 36Ω | 42Ω | 10-370 | 16-6660 | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | CORONADO PART No. | | |
| 34 | Bayonet | 6-8 | 0.15 | Brown | | | Type 47 |

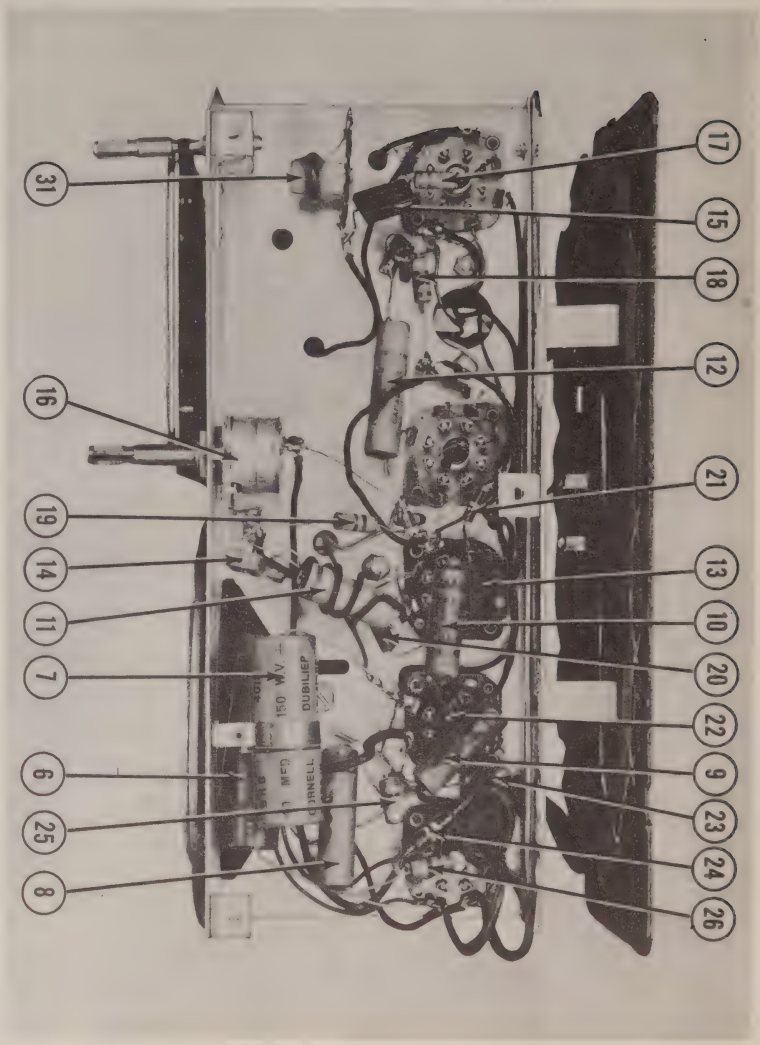
## MISCELLANEOUS

| ITEM No. | PART NAME | CORONADO PART No. | NOTES |
|---|---|---|---|
| 35 | Tuning Cap. | 19-177 | 2 Gang Variable Cap. |



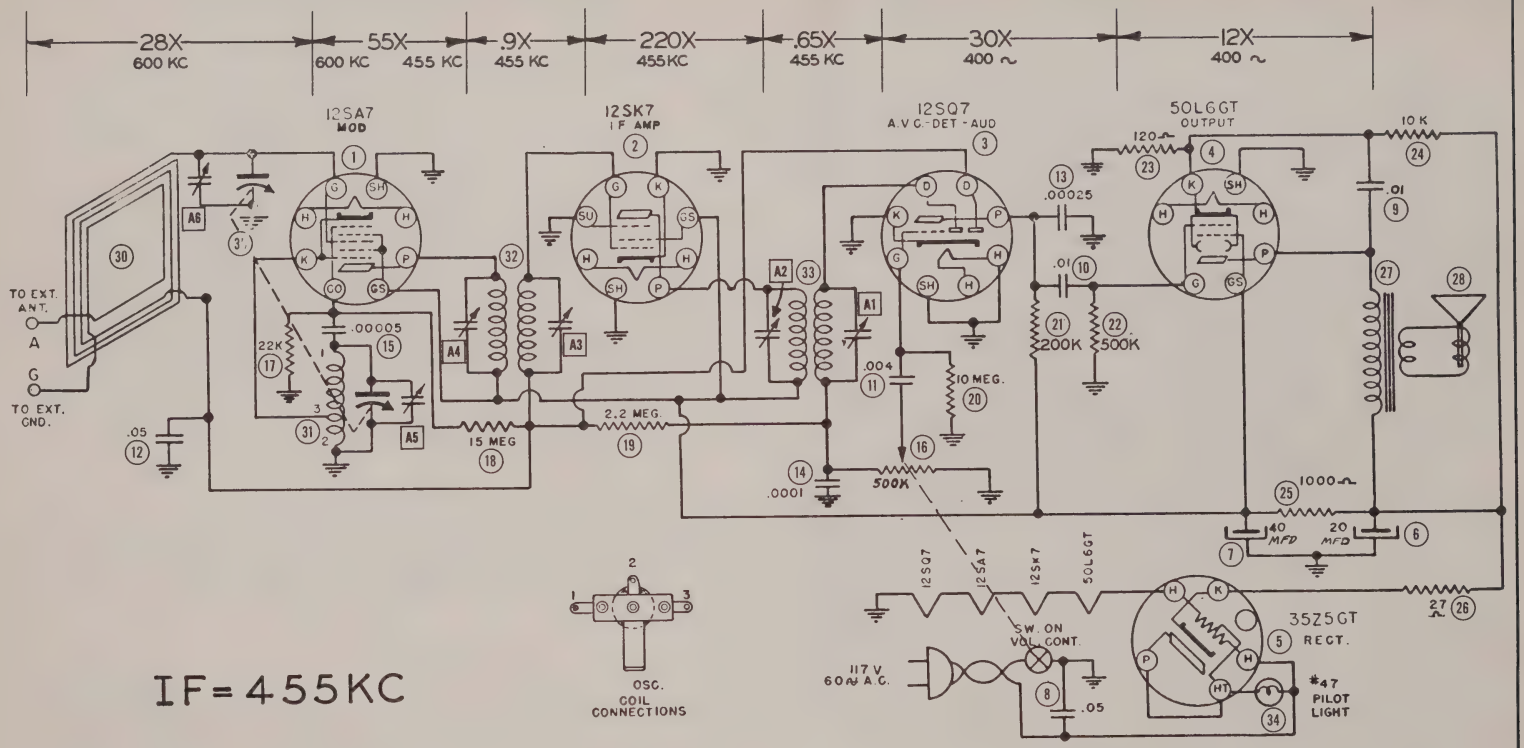

DIAL CORD DRIVE

# CHASSIS—BOTTOM VIEW




CORONADO MODEL 43-8180

CORONADO MODEL 43-8180




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0V. | 11.5V.AC | 87V.DC | 87V.DC | -2V.DC | 0V. | 23V.AC | -63V.DC |
| 2 | 12SK7GT | 0V. | 23V.AC | 0V. | -.6V.DC | 0V. | 87V.DC | 34V.AC | 87V.DC |
| 3 | 12SQ7GT | 0V. | -.52V.DC | 0V. | -.45V.DC | -.6V.DC | 67V.DC | 0V. | 11.5V.AC |
| 4 | 50L6GT | 0V. | 88V.AC | 105V.DC | 87V.DC | 0V. | 0V. | 34V.AC | 5.5V.DC |
| 5 | 35Z5GT | 0V. | 117V.AC | 114V.AC | 108V.DC | 114V.AC | 0V. | 88V.AC | 110V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0Ω | 12Ω | 10KΩ | 10KΩ | 22KΩ | .2Ω | 27Ω | 1.8MEG. |
| 2 | 12SK7GT | 0Ω | 27Ω | 0Ω | 1.8MEG. | 0Ω | 10KΩ | 35Ω | 10KΩ |
| 3 | 12SQ7GT | 0Ω | 10 MEG. | 0Ω | 460KΩ | 1.8MEG. | 210KΩ | 0Ω | 12Ω |
| 4 | 50L6GT | 0Ω | 80Ω | 9 KΩ | 10KΩ | 570KΩ | INF. | 35Ω | 112Ω |
| 5 | 35Z5GT | 0Ω | 102Ω | 100Ω | 9KΩ | 100Ω | INF. | 80Ω | 9KΩ |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-12

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CROSLEY
MODEL 56TU

CROSLEY
MODEL 56TU

CROSLEY MODEL 56TU

| | |
|---|---|
| **TRADE NAME** | Crosley Model 56 TU |
| **MANUFACTURER** | Crosley Corporation, 1329 Arlington St., Cincinnati, Ohio |
| **TYPE SET** | AC-DC Superheterodyne - Self Contained Loop Antenna |
| **TUBES** (FIVE) | Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Amp., 35Z5GT Rectifier. |
| **POWER SUPPLY** | 117 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC ·RATING .250 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS**

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to stator of front section of variable. Low side to B-. | 455KC | High freq.end. (Variable fully open) | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| 200 MMF. | High side to ext. ant. clip. Low side to chassis. | 1600KC | " | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | 1400KC | Tune for maximum output. | " | A6 | " " " " |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | CROSLEY PART No. | STANDARD REPLACEMENT | | |
| 1 | Converter | 12SA7 | 12SA7 | 8R | |
| 2 | IF Amp. | 12SK7 | 12SK7 | 8N | |
| 3 | Det.-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | CROSLEY PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | |
| 6A | 15 | 150 | B-135073 | M-2x20-150 | TA-116 | PRSA150-20-20 | BRL2215 | 2N509 | Filter |
| B | 15 | 150 | | | | | | | " |
| 7 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 8 | .2 | 200 | | S-4-2 | TC-2 | 484-.2 | DT4P2 | TP429 | Line Isolation |
| 9 | .022 | 200 | | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Output Plate Bypass |
| 10 | .022 | 200 | | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Audio Coupling |
| 11 | .0033 | 600 | | S-6-003 | TC-23 | 684-003 | DT6D3 | TP406 | " " |
| 12 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 13 | 220 | 500 | | M0.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | MC237 | Audio Plate Bypass |
| 14 | 10 | 500 | | M0.5-41 | MS-41 | 1468-00001 | 5W5Q1 | MC215 | Fixed Trimmer |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CROSLEY PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 15A | 1 Meg. | 1 | | MK402 | D13-137 | AM-63-2 | Volume Control |
| B | Shaft | | | Not Req. | E | KLS-3 | Attach to 15A per instructions |
| C | Switch | | | M26 | 41 | SW-A | " " " " " |

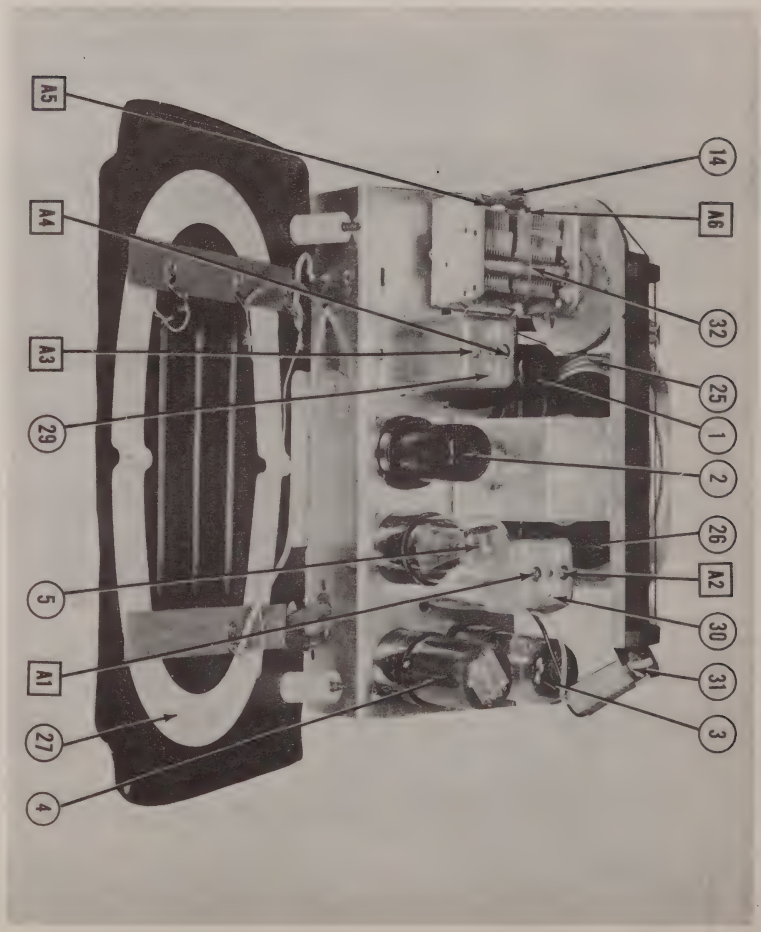
## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | CROSLEY PART No. | IRC PART No. | |
| 16 | 15 Meg. | 1/2 | | BTS-15 Meg. | Br.-Grn.-Blue AVC Network |
| 17 | 22KΩ | 1/2 | | BTS-22K | Red-Red-Or. Oscillator |
| 18 | 3.3 Meg. | 1/2 | | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 19 | 5 Meg. | 1/2 | | BTS-4.7 Meg. | Grn.-Blk.-Grn. 1st AF Grid |
| 20 | 470KΩ | 1/2 | | BTS-470K | Yl.-Vi.-Yl. 1st AF Plate Load |
| 21 | 510KΩ | 1/2 | | BTS-470K | Grn.-Br.-Yl. Output Grid |
| 22 | 150Ω | 1/2 | | BW-1/2-150 | Br.-Grn.-Br. Output Cathode |
| 23 | 250KΩ | 1/2 | | BTS-220K | Red-Grn.-Yl. Line Isolation |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | CROSLEY PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 24 | 2100Ω | 3.0Ω | 219Ω | .9Ω | B135077 | A-3676 | T22S45 | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: CROSLEY PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD RES. | VC IMP. | | ST-450* | | |
| 25 | 440Ω | 3.8Ω | 135632 | Mod. H5-S | | *Fabricate new mounting bracket. |
| | CONE DIA. | VC DIA. | | | | |
| 26 | 4" | 1/2" | NOT READILY | REPLACEABLE-USE COMPLETE SPEAKER UNIT | | |

## R F COILS

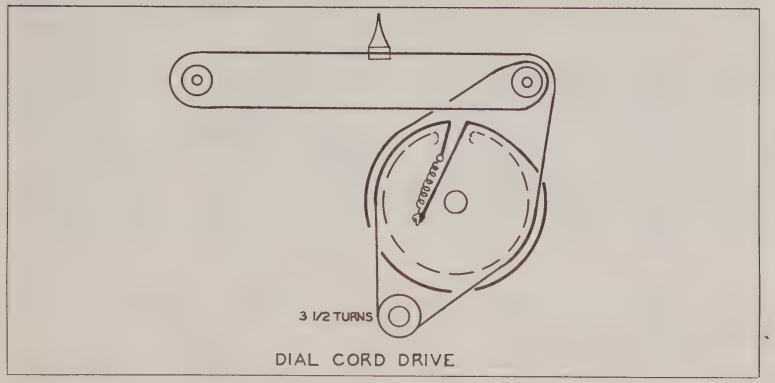
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: CROSLEY PART No. | MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 27 | Loop Ant. | .1Ω | 1.5Ω | | | |
| 28 | Osc. Coil | .7Ω | 6Ω | | 14-1040 | Add 50 MMFD from grid to high side tuning |
| 29 | Input IF | 23Ω | 20.5Ω | | 16-6666 | cap. |
| 30 | Output IF | 24Ω | | | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: CROSLEY PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 31 | Bayonet | 6-8 | 0.15 | Brown | W-48858 | | Type 47 |

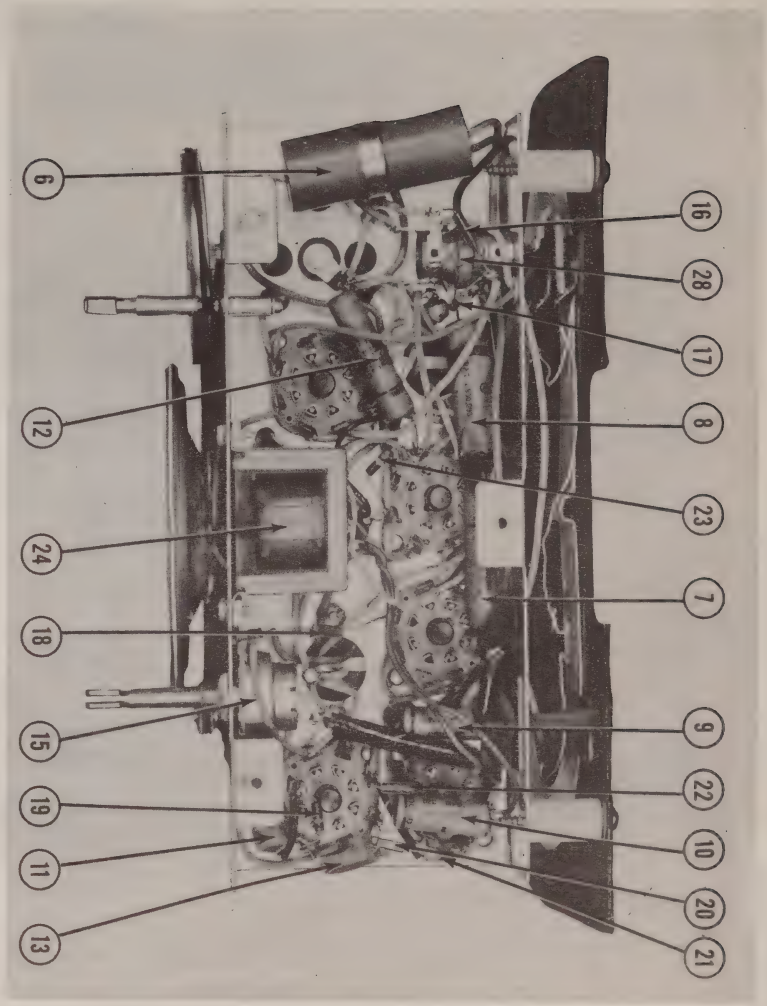
## MISCELLANEOUS

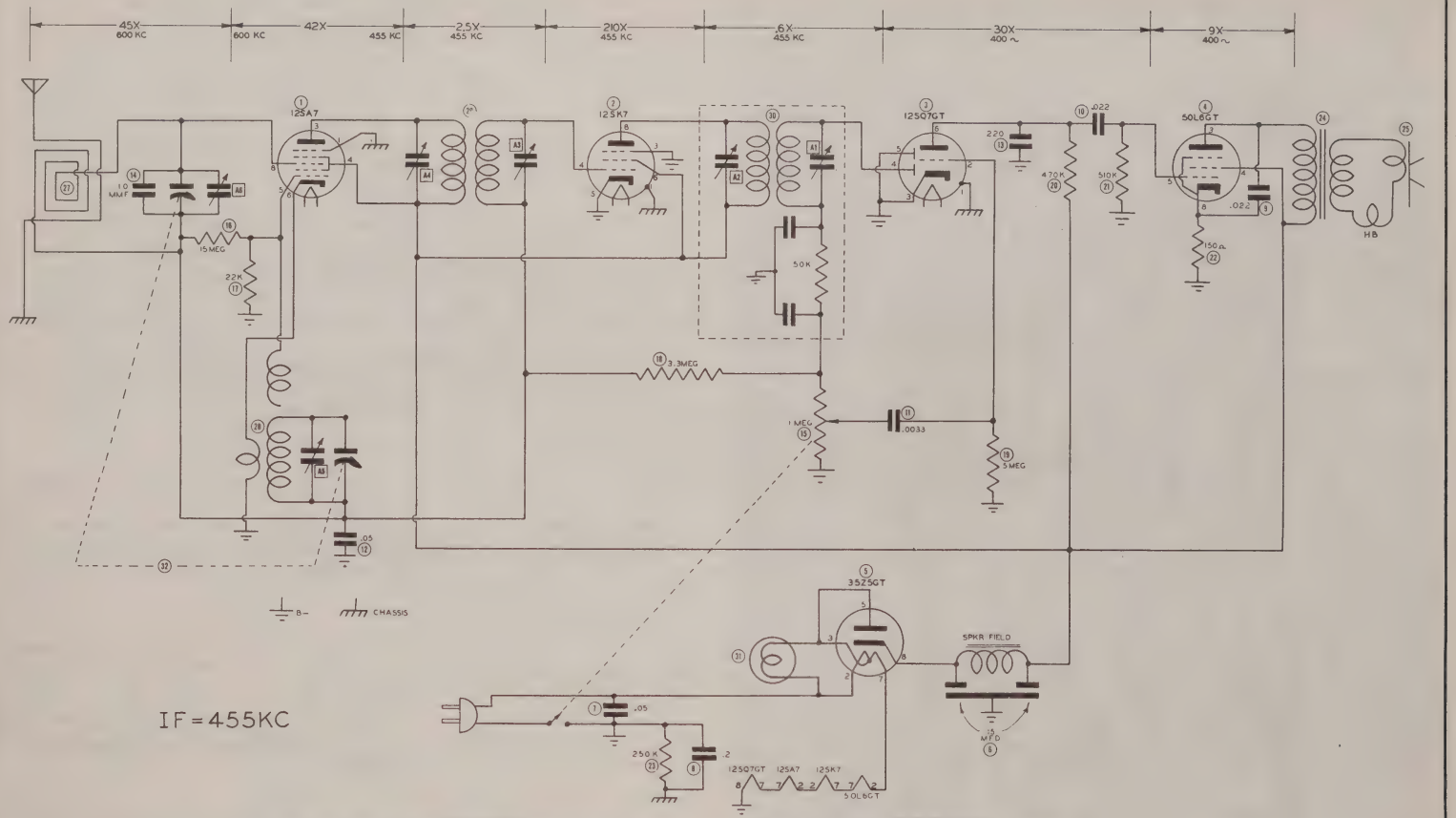
| ITEM No. | PART NAME | CROSLEY PART No. | NOTES |
|---|---|---|---|
| 32 | 2 Gang Variable Capacitor | | Ant. & Osc. Trimmers Included |



DIAL CORD DRIVE

## CHASSIS—BOTTOM VIEW






VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | -1V.DC | 25V.AC | 92V.DC | 92V.DC | -.4V.DC | 0V. | 13V.AC | -7V.DC |
| 2 | 12SK7 | -1V.DC | 25V.AC | 0V. | -7V.DC | 0V. | 92V.DC | 37V.DC | 92V.DC |
| 3 | 12SQ7GT | -1V.DC | -.85V.AC | 0V. | -.55V.DC | 0V. | 55V.DC | 13V.AC | 0V. |
| 4 | 50L6GT | 0V. | 87V.AC | 85V.DC | 92V.DC | 0V. | 92V.DC | 37V.AC | 5.8V.DC |
| 5 | 35Z5GT | 0V. | 117V.AC | 113V.AC | 0V. | 113V.AC | -7V.DC | 87V.AC | 119V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 240KΩ | 2MΩ | 50KΩ | 50KΩ | 19KΩ | .5Ω | 1MΩ | 3 MEG. |
| 2 | 12SK7 | 240KΩ | 2MΩ | 0Ω | 3 MEG. | 0Ω | 50KΩ | 3MΩ | 50KΩ |
| 3 | 12SQ7GT | 240KΩ | 4.5 MEG. | 0Ω | 875KΩ | 0Ω | 520KΩ | 1MΩ | 0Ω |
| 4 | 50L6GT | INF. | 7MΩ | 50KΩ | 50KΩ | 480KΩ | 50KΩ | 3MΩ | 135Ω |
| 5 | 35Z5GT | INF. | 9MΩ | 94Ω | INF. | 94Ω | 3 MEG. | 7MΩ | 50KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DALBAR
MODELS BARCOMBO JR., BARCOMBO SR.

DALBAR MODEL BARCOMBO JR.

DALBAR
MODELS BARCOMBO JR., BARCOMBO SR.

| | |
|---|---|
| **TRADE NAME** | Dalbar, Model Barcombo, Jr., and Barcombo Sr. |
| **MANUFACTURER** | Dalbar Manufacturing Co. 1314 Forest Ave., Dallas 15, Texas |
| **TYPE SET** | AC Operated Radio-Phonograph Combination Superheterodyne Receiver |
| **TUBES** (SIX) | Types, 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| **POWER SUPPLY** | 105-125 Volts AC |
| **TUNING RANGE—BROADCAST** | 540-1620KC RATING .270 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS**

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #8 (grid) of 12SA7. Low side to B-. | 455KC | High freq. end. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation |
| 200 MMF. | High side to ext. ant. Low side to B-. | 1620KC | " | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | " | " | " | A6 | " " " " |
| 200 MMF. | " | 1400KC | Tune for maximum output. | " | A7 | " " " " |
| 200 MMF. | " | 600KC | " | " | A8 | Rock tuning control and adjust for maximum output. Recheck A5 and A6 at 1620KC. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: DALBAR PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 6SS7 | 6SS7 | 8N | |
| 2 | Converter | 12SA7 | 12SA7 | 8R | |
| 3 | IF amp. | 6SS7 | 6SS7 | 8N | |
| 4 | Det.-AVC-AF | 12SQ7 | 12SQ7 | 8Q | |
| 5 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 6 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: DALBAR PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 30 | 150 | | M-5030-150 | TA-530 | PRSA150-40-40 | BRL3515 | 2N520 | Filter - Green |
| B | 50 | 150 | | | | | | | " - Red |
| 8 | .02 | 600 | | S-6-02 | TC-12 | 684-02 | DT6S2 | TP412 | Line Filter |
| 9 | .01 | 100 | | S-4-01 | TC-11 | 464-01 | DT4S1 | TP421 | Output Plate Bypass |
| 10 | .05 | 600 | | S-6-05 | TC-15 | 684-05 | DT6S5 | TP415 | Tone Compensation |
| 11 | .01 | 100 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 12 | .01 | 100 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | " " |
| 13 | .05 | 600 | | S-6-05 | TC-15 | 684-05 | DT6S5 | TP415 | RF Bypass Pwr. Supp. |
| 14 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Screen Bypass |
| 15 | .1 | 600 | | S-6-1 | TC-1 | 684-.1 | DT6P1 | TP418 | Line Isolation |
| 16 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 17 | 270 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | Audio Plate Bypass |
| 18 | 270 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | IF Bypass Vol. Cont. |
| 19 | 100 | 500 | | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Osc. Grid Capacitor |
| 20 | 100 | 500 | | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | RF Coupling |
| 46 | .001 | 100 | | S-6-001 | TC-21 | 464-001 | DT6D1 | TP404 | Phono. Bypass |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DALBAR PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 21A | 100KΩ | 1 | | MR39 | D13-128 | M-51-Z | Volume Control |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 21A per instructions. |
| 22A | 100KΩ | 1 | | MR40 | D13-128 | M-51-Z | Tone Control |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 22A per instructions. |

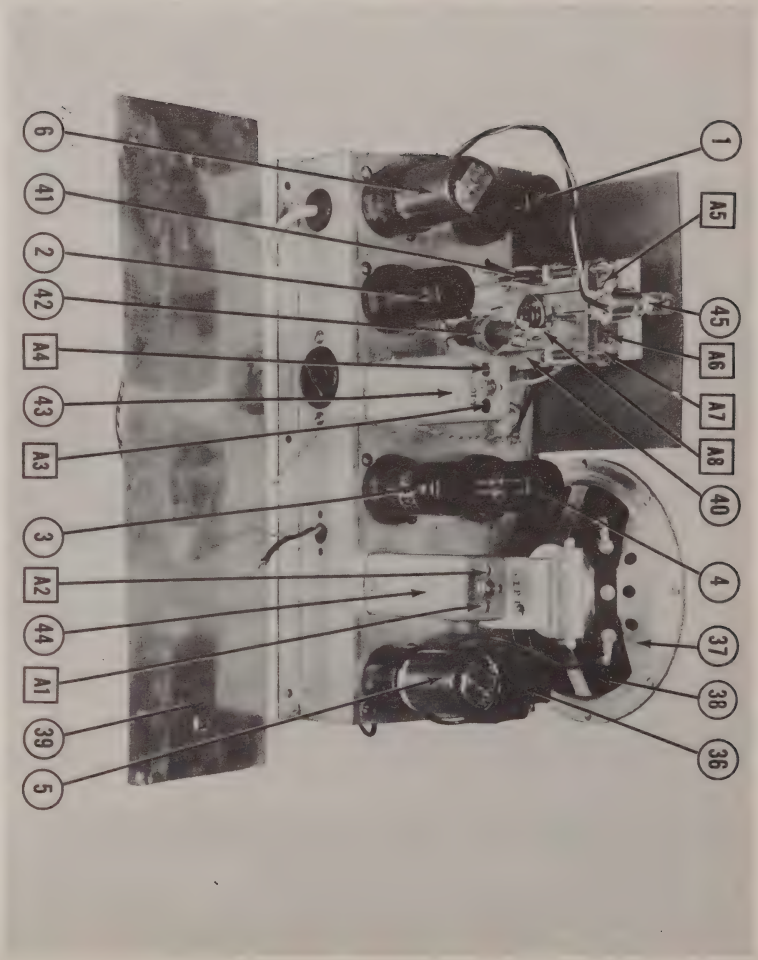
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DALBAR PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 23 | 390Ω | ½ | | BTS-3900 | Or.-White-Red RF Plate Load |
| 24 | 250KΩ | ½ | | BTS-270K | Red-Grn.-Yl. Line Isolation |
| 25 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. Converter Grid |
| 26 | 20KΩ | ½ | | BTS-22K | Red-Blk.-Or. Oscillator Grid |
| 27 | 500Ω | 1 | | BTA-470 | Grn.-Blk.-Br. Decoupling |
| 28 | 390Ω | ½ | | BW-½-390 | Or.-White-Br. IF Cathode |
| 29 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Series Phono. |
| 30 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 31 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 32 | 390KΩ | ½ | | BTS-390K | Or.-White-Yl. 1st AF Plate Load |
| 33 | 390KΩ | ½ | | BTS-390K | Or.-White-Yl. Output Grid |
| 34 | 150Ω | ½ | | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 35 | 500Ω | 1 | | BTA-470 | Grn.-Blk.-Br. Filter |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: DALBAR PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 36 | 3000Ω | 3Ω | 210Ω | .45Ω | | A-3876 | T22S45 | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA DALBAR PART No. | REPLACEMENT DATA JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-105 | | |
| 37 | PM | 3Ω | | Mod. P5-X | | |
| | CONE DIA. | VC DIA. | | | | |
| 38 | 4½" | ½" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

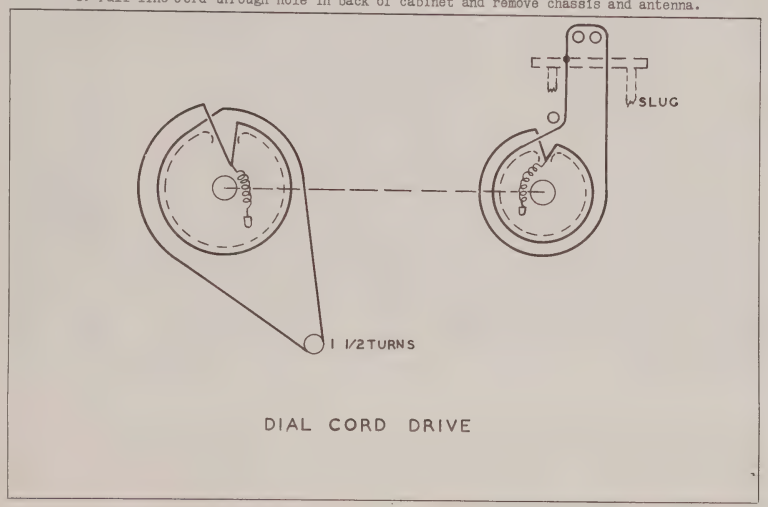
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA DALBAR PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 39 | Ant. Plate | | | | | |
| 40 | Ant. Coil | | 6.5Ω | | | Items 40, 41 ganged together and slug tuned. Items 40, 41, 42 form tuning assby. |
| 41 | Osc. Coil | | 3.5Ω | | | |
| 42 | Osc. Padder | | 3.6Ω | | | |
| 43 | Input IF | 21Ω | 17Ω | A1058 | 16-6666 | |
| 44 | Output IF | 22Ω | 15.5Ω | A1059 | 16-6667 | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA DALBAR PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 45 | Bayonet | 6-8 | 0.15 | brown | | | Type 47 |

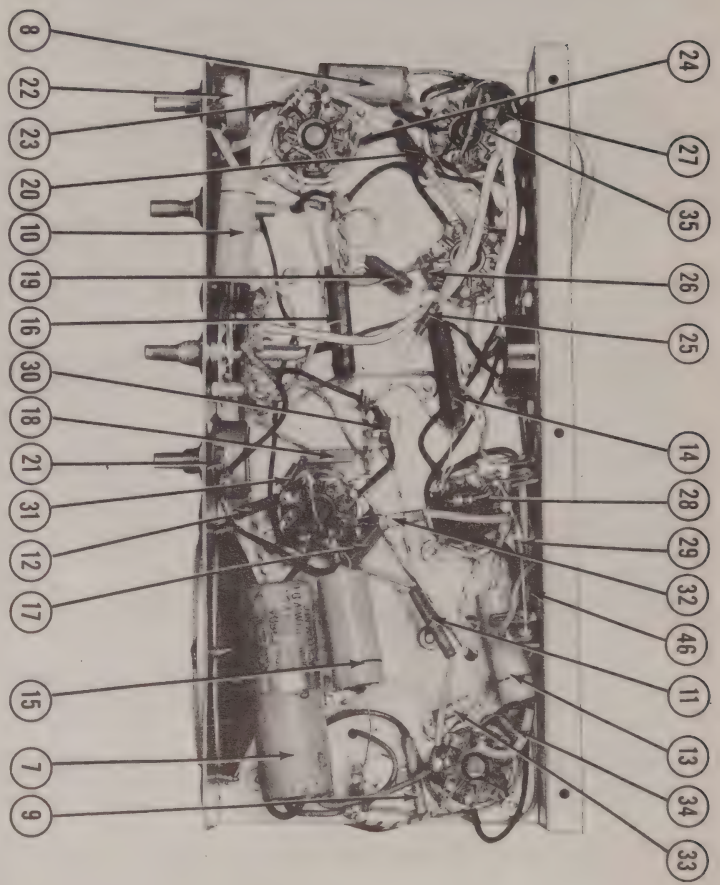
DISASSEMBLY INSTRUCTIONS

1. Remove the four set-screw type knobs. and felt washers.
2. Remove the four Phillips head screws from the turntable board.
3. Disconnect phono-motor plug.
4. Unsolder red and white antenna lead from lug on terminal strip on top of chassis.
5. Unsolder phono-pickup leads.
6. Remove line plug from line cord.
7. Remove antenna from back of cabinet.
8. Pull line cord through hole in back of cabinet and remove chassis and antenna.

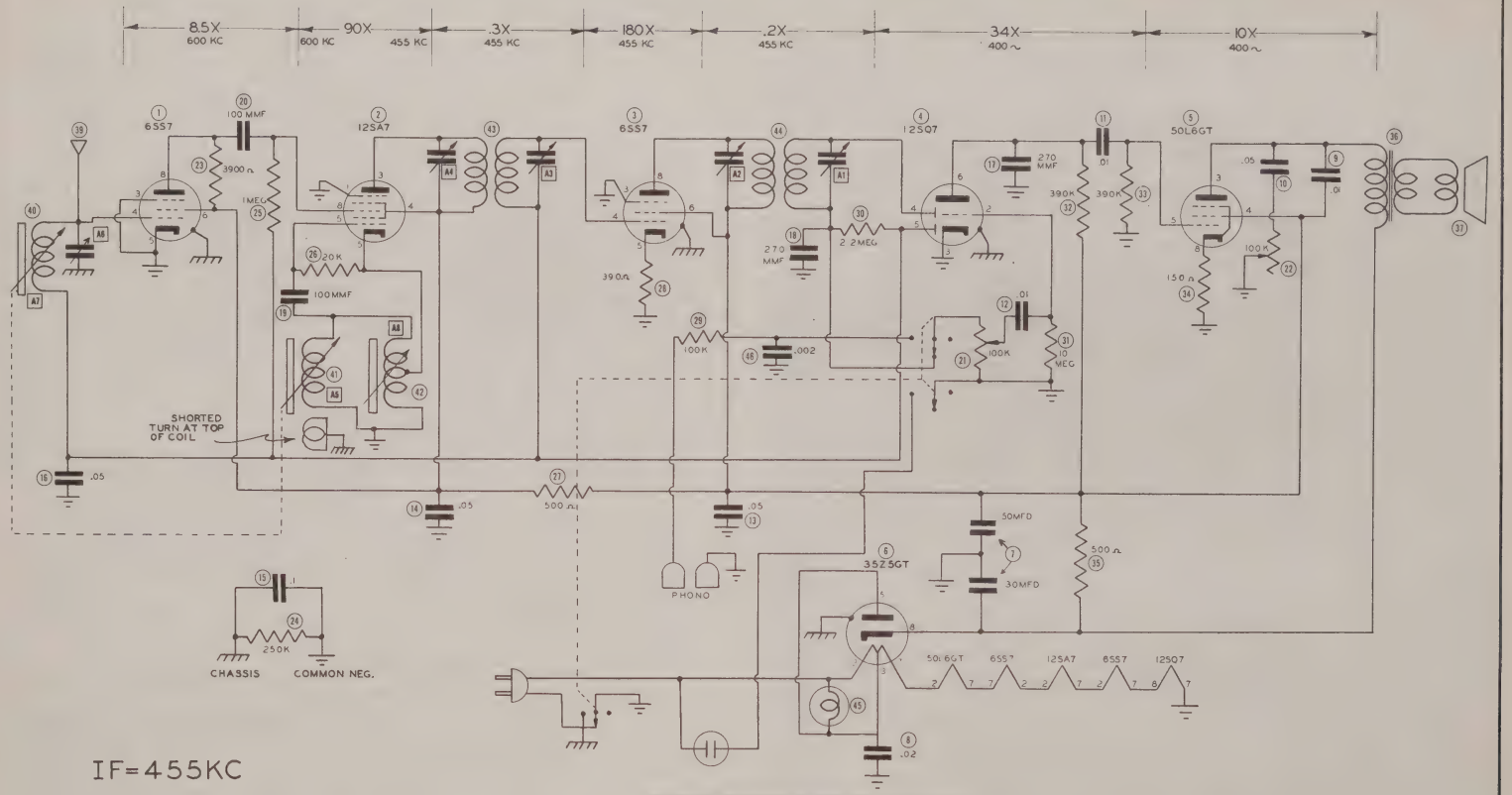



DIAL CORD DRIVE

## CHASSIS—BOTTOM VIEW




DALBAR
BARCOMBO JR.
BARCOMBO SR.




IF=455KC

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SS7 | -3.5V.DC | 20V.AC | 0V. | -3.5V.DC | 0V. | 88V.DC | 13V.AC | 47V.DC |
| 2 | 12SA7 | 0V. | 32V.AC | 88V.DC | 88V.DC | -9.3V.DC | 0V. | 20V.AC | -1V.DC |
| 3 | 6SS7 | -3.5V.DC | 32V.AC | 0V. | -3.5V.DC | 3.4V.DC | 99V.DC | 38V.AC | 99V.DC |
| 4 | 12SQ7 | -3.5V.DC | -4.5V.DC | 0V. | +25V.DC | -3.5V.DC | 57V.DC | 0V. | 13V.AC |
| 5 | 50L6GT | -3.5V.DC | 87V.AC | 107V.DC | 99V.DC | 0V. | 0V. | 38V.AC | 6.1V.DC |
| 6 | 35Z5GT | -3.5V.DC | 117V.AC | 113V.AC | 99V.DC | 113V.AC | 88V.DC | 87V.AC | 114V.DC |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SS7 | 265KΩ | 18Ω | 0Ω | 2.2MEG. | 0Ω | 20KΩ | 12Ω | 24KΩ |
| 2 | 12SA7 | 0Ω | 28Ω | 20KΩ | 20KΩ | 19KΩ | .5Ω | 18Ω | 3 MEG. |
| 3 | 6SS7 | 265KΩ | 28Ω | 0Ω | 2.2MEG. | 350Ω | 20KΩ | 34Ω | 20KΩ |
| 4 | 12SQ7 | 265KΩ | 10 MEG. | 0Ω | 100KΩ | 2.2MEG. | 410KΩ | 0Ω | 12Ω |
| 5 | 50L6GT | 265KΩ | 76Ω | 20KΩ | 20KΩ | 380KΩ | 0Ω | 34Ω | 140Ω |
| 6 | 35Z5GT | 265KΩ | 105Ω | 100Ω | 20KΩ | 100Ω | 20KΩ | 76Ω | 20KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-14

**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

DALBAR
MODEL 100-1000 SERIES

DALBAR
MODEL 100-1000 SERIES

DALBAR MODEL 100-1000 SERIES

| | |
|---|---|
| **TRADE NAME** | Dalbar, Model 100-1000 Series |
| **MANUFACTURER** | Dalbar Manufacturing Co., 1314 Forest Ave., Dallas 15, Texas |
| **TYPE SET** | AC-DC Table Model Superheterodyne Receiver |
| **TUBES** (FIVE) | Types, 12SA7GT Converter, 12SG7GT IF Amp., 12SR7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| **POWER SUPPLY** | 105-125 Volts AC-DC |
| **TUNING RANGE—BROADCAST** | 540-1620KC RATING .255 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS**

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #8 (grid) of 12SA7. Low side to B-. | 455KC | High freq.end | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| 200 MMF. | High side to ext. ant. Low side to B-. | 1620KC | " " " | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | " | " " " | " | A6 | " " " " |
| 200 MMF. | " | 1400KC | Tune for maximum output. | " | A7 | " " " " |
| 200 MMF. | " | 600KC | " | " | A8 | Rock tuning control and adjust for maximum output. Recheck A5 and A6 at 1620KC. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | DALBAR PART No. | STANDARD REPLACEMENT | | |
| 1 | Converter | 12SA7GT | 12SA7GT | 8AD | |
| 2 | IF Amp. | 12SG7GT | 12SG7GT | 8BK | |
| 3 | Det.-AVC-AF | 12SR7GT | 12SR7GT | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | DALBAR PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | |
| 6A | 40 | 150 | | DY-2x40-150 | EL-245 | AF38D | UF6BJ34 | FP214 | ■ Filter |
| B | 40 | 150 | | | | | | | ▲ " |
| 7 | .02 | 600 | | S-6-02 | TC-12 | 684-02 | DT6S2 | TP412 | Line Filter |
| 8 | .01 | 600 | | S-6-01 | TC-11 | 684-01 | DT6S1 | TP411 | Output Plate Bypass |
| 9 | .05 | 600 | | S-6-05 | TC-15 | 684-05 | DT6S5 | TP415 | Tone Compensation |
| 10 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 11 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | " " |
| 12 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | IF Cath. Bypass |
| 13 | .05 | 600 | | S-6-05 | TC-15 | 684-05 | DT6S5 | TP415 | AVC Filter |
| 14 | 250 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | Audio Plate Bypass |
| 15 | 250 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | IF Bypass Vol. Cont. |
| 16 | 50 | 500 | | M0.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Osc. Grid Capacitor |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | DALBAR PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 17A | 100KΩ | 1 | | MR39 | D13-128 | M-51-Z | Volume Control |
| B | Shaft | | | Not Req. | " | Not Req. | Attach to 17A per instructions |
| 18A | 100KΩ | 1 | | MR40 | D13-128 | M-51-Z | Tone Control |
| B | Shaft | | | Not Req. | " | Not Req. | Attach to 18A per instructions |

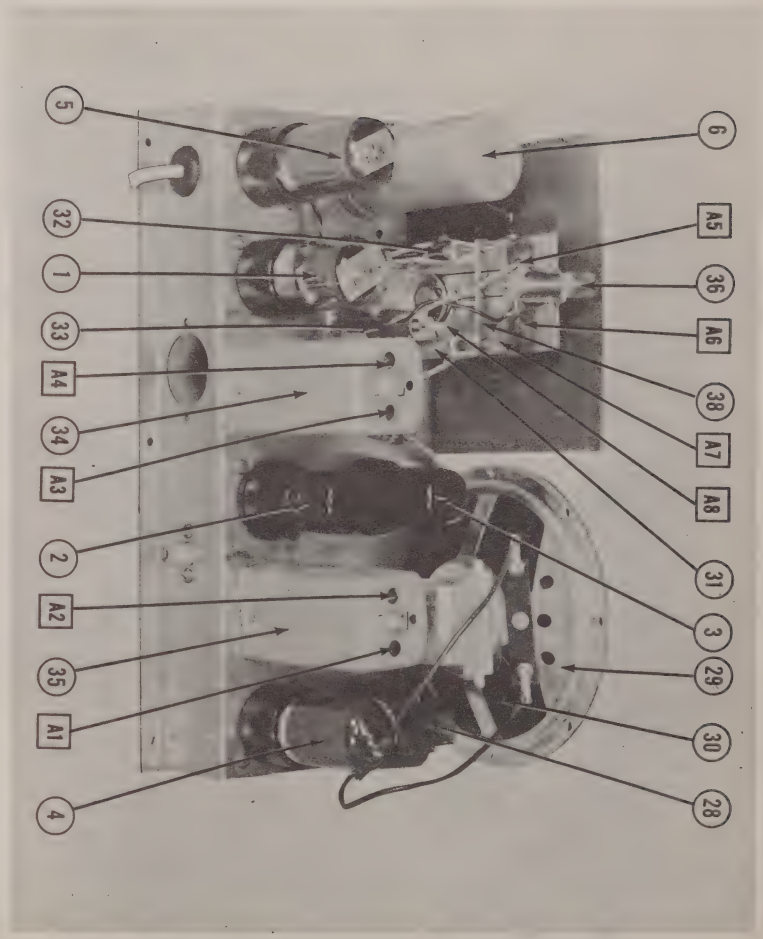
## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | DALBAR PART No. | IRC PART No. | |
| 19 | 20KΩ | ½ | | BTS-22K | Red-Blk.-Or. Oscillator Grid |
| 20 | 390Ω | ½ | | BW-½-390 | Or.-White-Br. IF Cathode |
| 21 | 2.2 Meg. | ½ | | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 22 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Series Phono |
| 23 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 24 | 390KΩ | ½ | | BTS-390K | Or.-White-Yl. 1st AF Plate Load |
| 25 | 390KΩ | ½ | | BTS-390K | Or.-White-Yl. Output Grid |
| 26 | 150Ω | 2 | | BW-2-150 | Br.-Grn.-Br. Output Cathode |
| 27 | 500Ω | 1 | | BTA-470 | Grn.-Blk.-Br. Filter |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | DALBAR PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 28 | 3000Ω | 3Ω | 210Ω | .45Ω | | A-3876 | T22845 | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

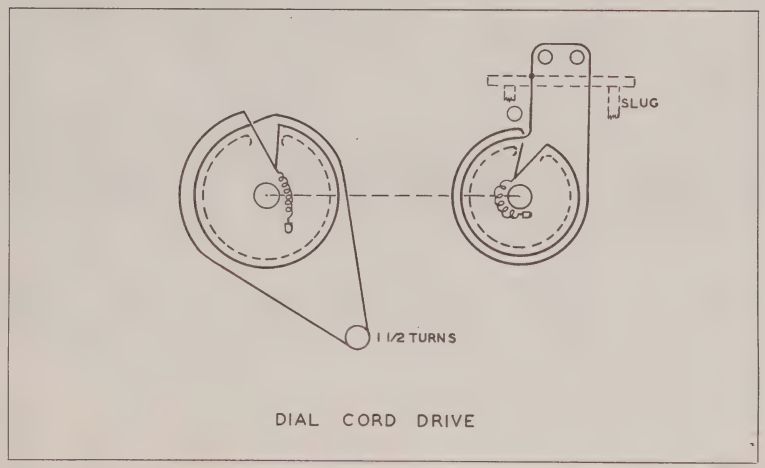
| ITEM No. | RATINGS | | REPLACEMENT DATA: DALBAR PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-105 | | |
| 29 | PM | 3Ω | | Mod. P5-X | | |
| | CONE DIA. | VC DIA. | | | | |
| 30 | 4½" | ½" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: DALBAR PART No. | MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 31 | Ant. Coil | | 3.5Ω | | | Items 31, 32 ganged together and slug tuned. |
| 32 | Osc. Coil | | 3.5Ω | | | Items 31, 32, 33 form complete tuning assby. |
| 33 | Osc. Padder | | 3.6Ω | | | |
| 34 | Input IF | 20Ω | 20.3Ω | X681 | 16-6658 | |
| 35 | Output IF | 22Ω | 22Ω | X682 | 16-6660 | |

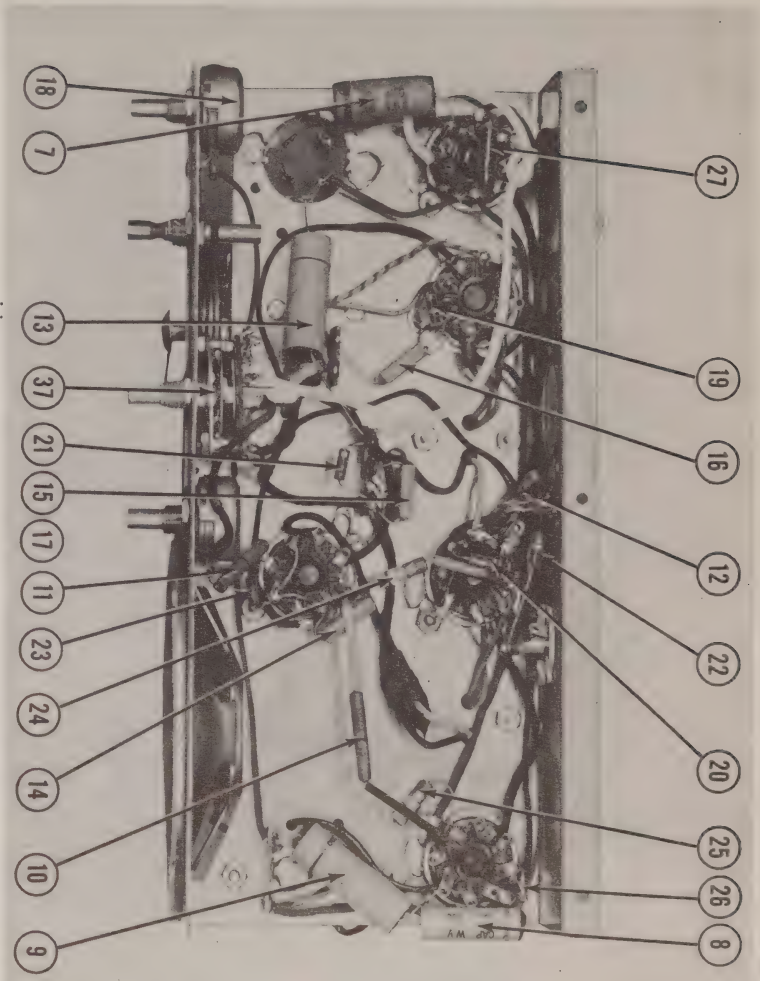
## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: DALBAR PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 36 | Bayonet | 6-8 | 0.15 | Brown | | | Type 47 |



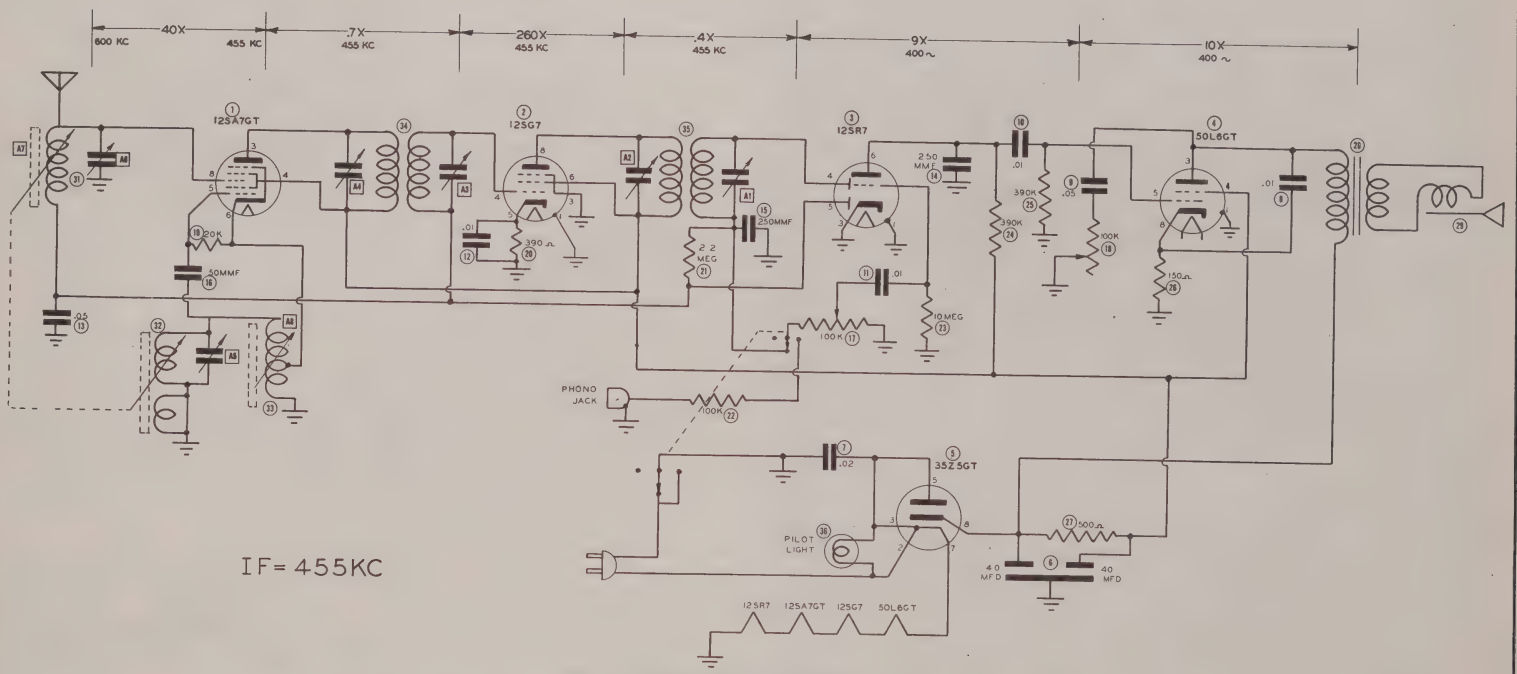

DIAL CORD DRIVE

## CHASSIS—BOTTOM VIEW






DALBAR MODEL 100-1000 SERIES




NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0V. | 25VAC | 107VDC | 107VDC | -8VDC | 0V. | 12VAC | +35VDC |
| 2 | 12SG7GT | 0V. | 25VAC | 0V. | +35VDC | 0V. | 107VDC | 37VAC | 107VDC |
| 3 | 12SR7GT | 0V. | -25VDC | 0V. | -2VDC | +35VDC | 13VDC | 0V. | 12VAC |
| 4 | 50L6GT | 0V. | 87VAC | 109VDC | 107VDC | 0V. | 0V. | 37VAC | 7VDC |
| 5 | 35Z5GT | 0V. | 117VAC | 113VAC | 107VDC | 113VAC | 0V. | 87VAC | 117VDC |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7GT | 0Ω | 22Ω | 20KΩ | 20KΩ | 18KΩ | 5Ω | 1Ω | 2.2 MEG. |
| 2 | 12SG7GT | 0Ω | 22Ω | 0Ω | 2.2MEG. | 0Ω | 20KΩ | 33Ω | 20KΩ |
| 3 | 12SR7GT | 0Ω | 10 MEG. | 0Ω | 90KΩ | 2.2MEG. | 410KΩ | 0Ω | 1Ω |
| 4 | 50L6GT | 0Ω | 72Ω | 20KΩ | 20KΩ | 350KΩ | INF. | 33Ω | 150Ω |
| 5 | 35Z5GT | 0Ω | 97Ω | 94Ω | 20KΩ | 94Ω | INF. | 72Ω | 20KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DETROLA
MODELS 571, -A, -B, -L, -AL, -BL

DETROLA
MODELS 571, -A, -B, -L, -AL, -BL

DETROLA MODEL 571L

| | |
|---|---|
| TRADE NAME | Detrola, Models 571, 571A, 571B, 571L, 571AL, 571BL |
| MANUFACTURER | International Detrola Corp., 1501 Beard St., Detroit, Michigan |
| TYPE SET | AC-DC Superheterodyne Receiver - Self Contained Loop Antenna |
| TUBES (FIVE) | Types, 14Q7 Converter, 14A7/12B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier, or types, 12SA7, 12SK7, 12SQ7, 50L6GT, 35Z5GT Respecitively. |
| POWER SUPPLY | 105-125 Volts AC or DC |
| TUNING RANGE—BROADCAST | 540-1600KC RATING .240 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS**

Use isolation transformer if available. If not, connect capacitor in series with low side of the signal generator and B-. Set volume control at maximum volume and output from the signal generator no higher than is necessary to obtain output reading. When adjusting A6 the loop and chassis must be in the same relative position as they are when mounted in the cabinet. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #6 (grid) of 14Q7. Low side to B-. | 455KC | High freq. end | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If Isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| | Loop | 1620KC | " " " | " | A5 | Connect output of signal generator to two turns of wire approx. 12 inches in diameter and radiate signal into receiver loop. Adjust for maximum output. |
| | " | 1400KC | Tune for maximum output. | " | A6 | " |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: DETROLA PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 14Q7 | 14Q7 | 8AL | or 12SA7 8AD |
| 2 | IF Amp. | 14A7/12B7 | 14A7/12B7 | 8V | or 12SK7 8N |
| 3 | Det.-AVC-AF | 14B6 | 14B6 | 8W | or 12SQ7 8Q |
| 4 | Power Output | 50A5 | 50A5 | 6AA | or 50L6GT 7AC |
| 5 | Rectifier | 35Y4 | 35Y4 | 5AL | or 35Z5GT 6AD |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: DETROLA PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 6A | 40 | 150 | A-8948 | DY-4020-150 | EL-24 | AF84D4A* | UP4215 | FP306* | ■ Filter |
| B | 20 | 150 | | | | | | | ▲ " |
| 7 | .05 | 400 | BC31B503 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 8 | .02 | 400 | BD410203 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | 50A5 Plate Bypass |
| 9 | .02 | 400 | BD410203 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Audio Coupling |
| 10 | .01 | 400 | BD410103 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | " " |
| 11 | .1 | 400 | BD410104 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Line Isolation |
| 12 | .05 | 200 | BD210503 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 13 | 470 | 500 | BM78A471 | MO.5-35 | 1FM-35 | 1468-0005 | 5W5T5 | MC245 | Audio Plate Bypass |
| 14 | 100 | 500 | BM78A101 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Osc. Grid Capacitor |

*Do not use bypass section.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DETROLA PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 15A | 500KΩ | 1 | B-9051-1 | MK401 | D13-133 | AM-60-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KSS-3 | Attach to 15A per instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DETROLA PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 16 | 22KΩ | 1/3 | BR17B223 | BTS-22K | Red-Red-Or. Oscillator Grid |
| 17 | 15 Meg. | 1/3 | BR17B156 | BTS-15 Meg. | Br.-Grn.-Blue AVC Network |
| 18 | 220KΩ | 1/3 | BR17B224 | BTS-220K | Red-Red-Yl. Line Isolation |
| 19 | 3.3 Meg. | 1/3 | BR17B335 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 20 | 6.8 Meg. | 1/3 | BR17B685 | BTS-6.8 Meg. | Blue-Gray-Grn. 1st AF Grid |
| 21 | 470KΩ | 1/3 | BR17B474 | BTS-470K | Yl.-Vi.-Yl. 1st AF Plate Load |
| 22 | 470KΩ | 1/3 | BR17B474 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 23 | 150Ω | 1/2 | BR16C151 | BW-#-150 | Br.-Grn.-Br. Output Cathode |

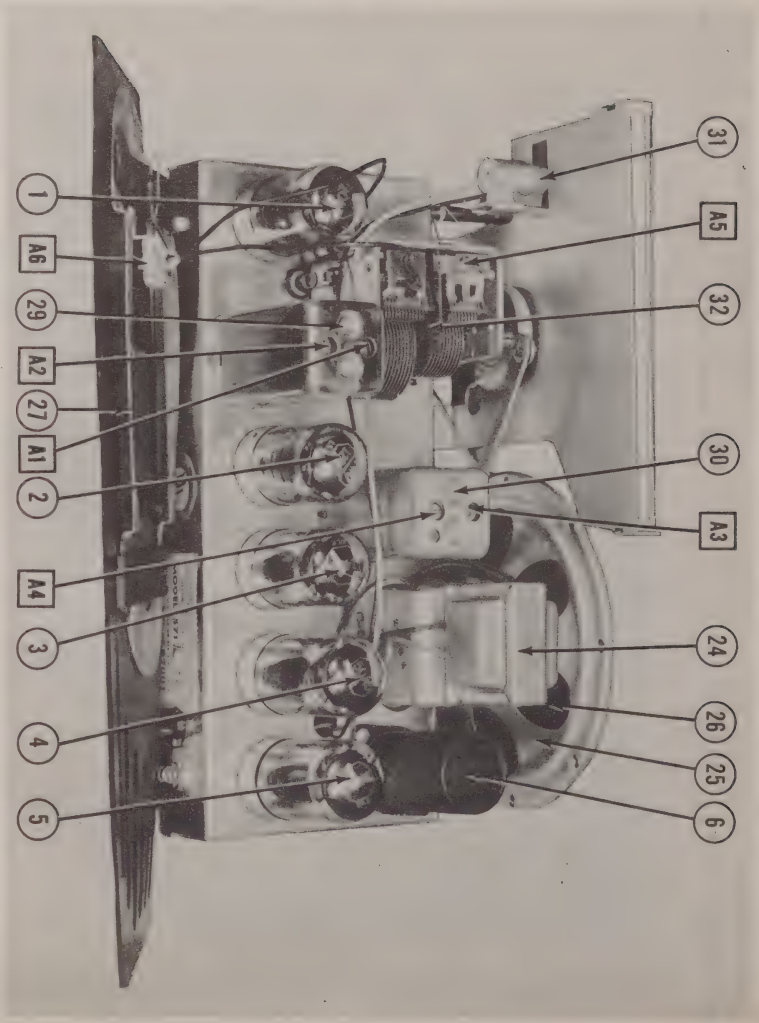
## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: DETROLA PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDARSON PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 4000Ω | 3.5Ω | 240Ω | .72 | Part of C-51014 | A-3856# | T22S46# | | #Send mounting tabs down, file out slots and mount on original bracket. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: DETROLA PART No. | REPLACEMENT DATA: JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD RES. | VC IMP. | | ST-450 | | |
| 25 | 350Ω | 3.5Ω | C-51014 | Mod. H-55 | | Add 1500Ω 10W Resistor in parallel with field coil |
| | CONE DIA. | VC DIA. | | | | |
| 26 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

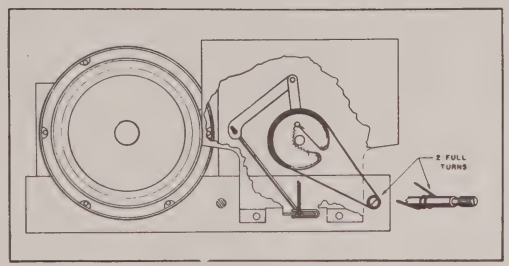
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA DETROLA PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 27 | Loop Ant. | 1Ω | 1Ω | | | |
| 28 | Osc. Coil | 1Ω | 6Ω | B51159 | 14-1040 | |
| 29 | Input IF | 29Ω | 22Ω | B51010-1 | 16-6658 | |
| 30 | Output IF | 34Ω | | B51011-1 | 16-3670 | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA DETROLA PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 31 | Bayonet | 6-8 | 0.15 | Brown | A6158 | | Type 47 |

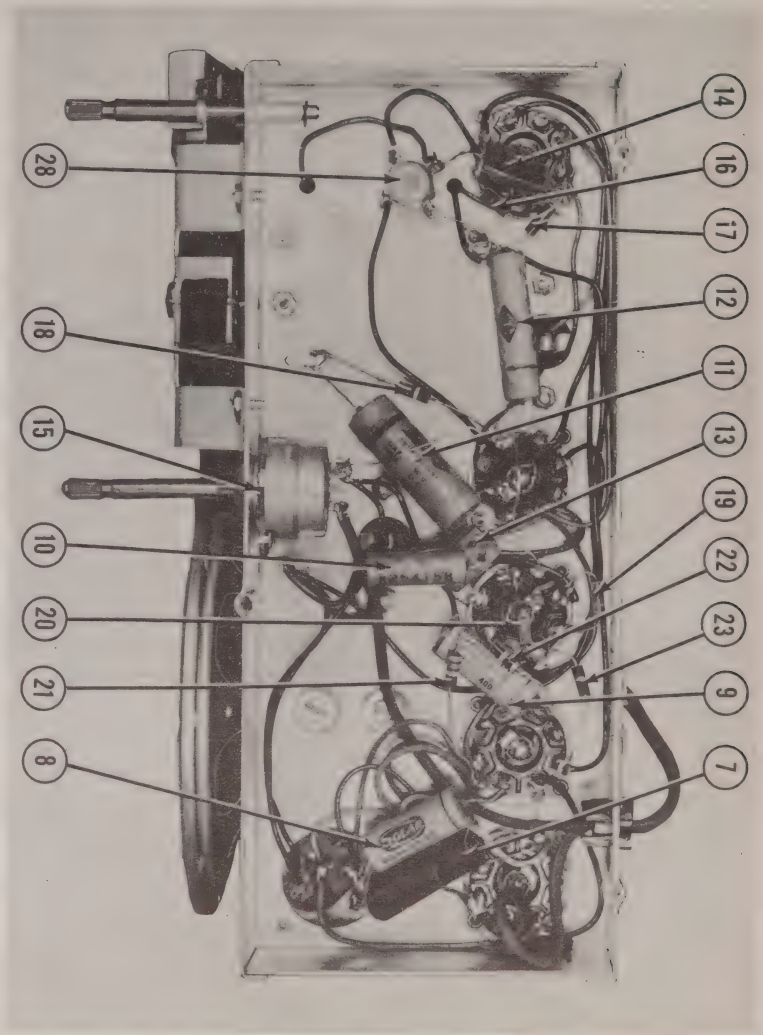
## MISCELLANEOUS

| ITEM No. | PART NAME | DETROLA PART No. | NOTES |
|---|---|---|---|
| 32 | 2 Gang Var. Cap | | Osc. Trimmer Included |
| A6 | Trimmer | | Ant. Adjustment |



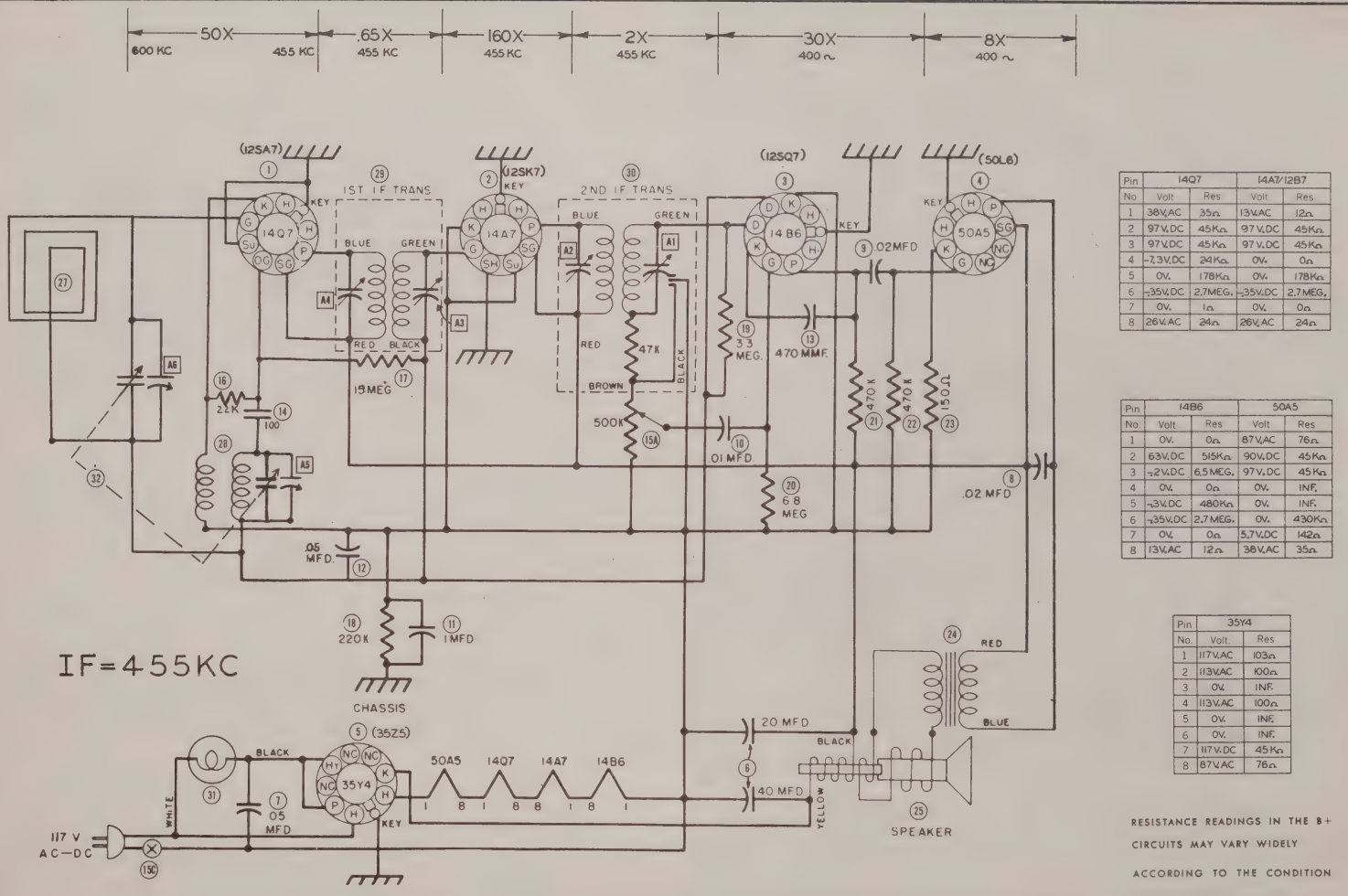

Dial Mechanism

## CHASSIS—BOTTOM VIEW




DETROLA MODELS
571,-A,-B,-L,-AL,-BL

DETROLA MODELS
571,-A,-B,-L,-AL,-BL




| Pin No | 14Q7 Volt | 14Q7 Res | 14A7/12B7 Volt | 14A7/12B7 Res |
|---|---|---|---|---|
| 1 | 38V.AC | 35Ω | 13V.AC | 12Ω |
| 2 | 97V.DC | 45KΩ | 97V.DC | 45KΩ |
| 3 | 97V.DC | 45KΩ | 97V.DC | 45KΩ |
| 4 | -7.3V.DC | 24KΩ | 0V. | 0Ω |
| 5 | 0V. | 178KΩ | 0V. | 178KΩ |
| 6 | -35V.DC | 2.7MEG. | -35V.DC | 2.7MEG. |
| 7 | 0V. | 1Ω | 0V. | 0Ω |
| 8 | 26V.AC | 24Ω | 26V.AC | 24Ω |

| Pin No. | 14B6 Volt | 14B6 Res | 50A5 Volt | 50A5 Res |
|---|---|---|---|---|
| 1 | 0V. | 0Ω | 87V.AC | 76Ω |
| 2 | 63V.DC | 515KΩ | 90V.DC | 45KΩ |
| 3 | -2V.DC | 6.5 MEG. | 97V.DC | 45KΩ |
| 4 | 0V. | 0Ω | 0V. | INF. |
| 5 | -3V.DC | 480KΩ | 0V. | INF. |
| 6 | -35V.DC | 2.7 MEG. | 0V. | 430KΩ |
| 7 | 0V. | 0Ω | 5.7V.DC | 142Ω |
| 8 | 13V.AC | 12Ω | 38V.AC | 35Ω |

| Pin No. | 35Y4 Volt. | 35Y4 Res |
|---|---|---|
| 1 | 117V.AC | 103Ω |
| 2 | 113V.AC | 100Ω |
| 3 | 0V. | INF. |
| 4 | 113V.AC | 100Ω |
| 5 | 0V. | INF. |
| 6 | 0V. | INF. |
| 7 | 117V.DC | 45KΩ |
| 8 | 87V.AC | 76Ω |

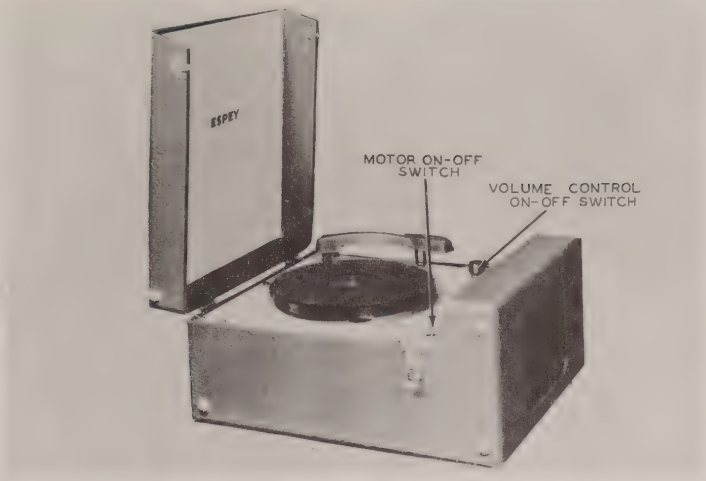
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4610-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

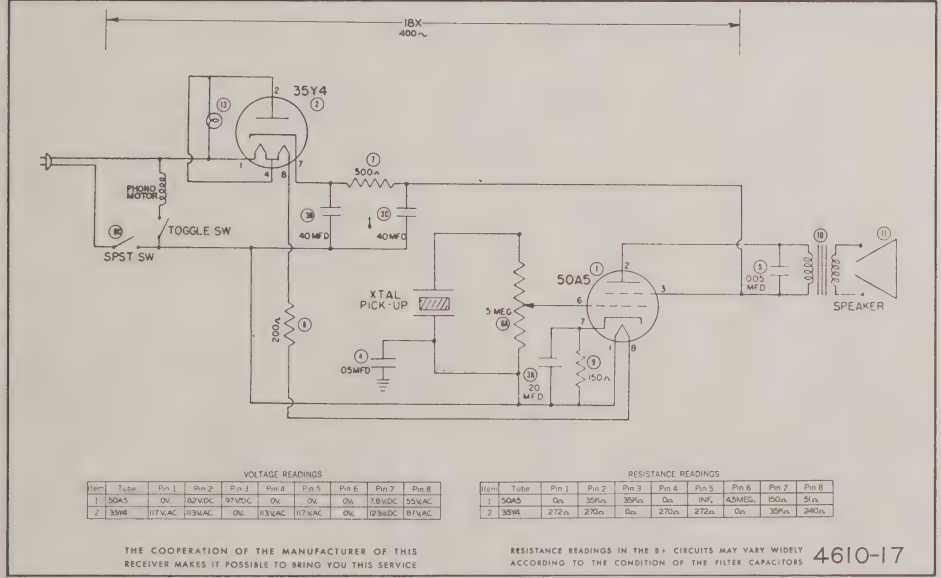
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




ESPEY MODEL 621

| | |
|---|---|
| TRADE NAME | Espey Model 621 |
| MANUFACTURER | Espey Mfg. Co., Inc., 528 E. 72nd St., New York 21, N.Y. |
| TYPE SET | Portable Record Player with 2 Tube Amp. & Speaker |
| TUBES (TWO) | Types, 50A5 Power Output, 35Y4 Rectifier |
| POWER SUPPLY | 105-125 Volts AC RATING .235 Amps. @ 117V AC |

ESPEY
MODEL 621




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 50A5 | 0V. | 82VDC. | 97VDC. | 0V. | 0V. | 0V. | 7.8VDC. | 55VAC. |
| 2 | 35Y4 | 117 V.AC | 113VAC. | 0V. | 113VAC. | 117VAC. | 0V. | 123VDC. | 87VAC. |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 50A5 | 0Ω | 35KΩ | 35KΩ | 0Ω | INF. | 4.5MEG. | 150Ω | 51Ω |
| 2 | 35Y4 | 272Ω | 270Ω | 0Ω | 270Ω | 272Ω | 0Ω | 35KΩ | 240Ω |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-17

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: ESPEY PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Power Output | 50A5 | 50A5 | 8AM | |
| 2 | Rectifier | 35Y4 | 35Y4 | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: ESPEY PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 3A | 40 | 150 | A-25.020 | DSB-305 | TA-440 | PRSA150-40-40 | BRD4415 | 2N511 | Filter - Red |
| B | 40 | 150 | | | | | | | " - " |
| C | 20 | 25 | | | TA-25 | PRS25-25 | BR202A | TC26 | Cath. Bypass - Green |
| 4 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Isolation |
| 5 | .005 | 600 | | S-6-005 | TC-25 | 684-005 | DT6D5 | TP408 | Output Plate Bypass |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ESPEY PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 6A | 5 Meg. | 1 | A-8.067 | UC506 | | M-69-Z | Volume Control |
| B | Shaft | | Not Req. | Not Req. | | Not Req. | Attach to 6A per instructions |
| C | Switch | | " " | 6-9 | | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: ESPEY PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 7 | 500Ω | 2 | | BT-2-500 | Grn.-Blk.-Br. Filter |
| 8 | 200Ω | 10 | | AB-200 | Line Dropping |
| 9 | 150Ω | 1/2 | | BW-½-150 | Br.-Grn.-Br. Output Cathode |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: ESPEY PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 2000Ω | 3.3Ω | 280Ω | .35Ω | Part of C-11.039 | A-3856* | T-22S47 | | *Universal transformer-use tap which will give best impedance matching. |

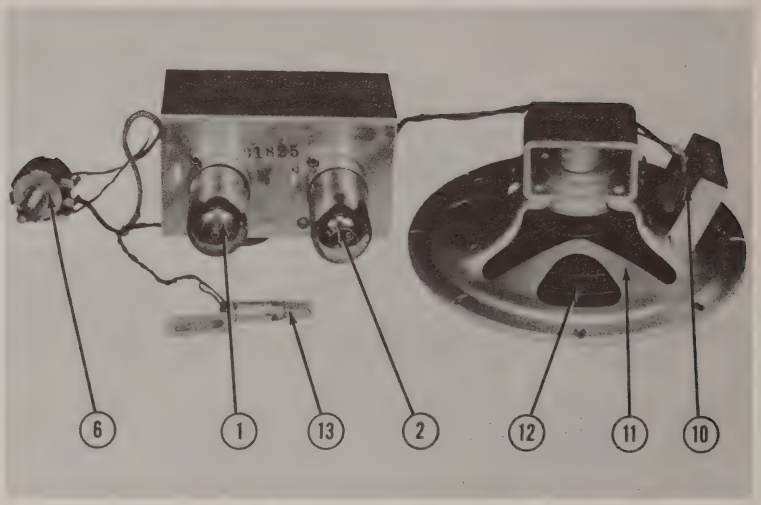
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: ESPEY PART No. | REPLACEMENT DATA: JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | VC IMP. | | ST-109 | | |
| 11 | PM | 3.3Ω | C-11.039 | Mod. P6-W | | |
| | CONE DIA. | VC DIA. | | | | |
| 12 | 6" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |

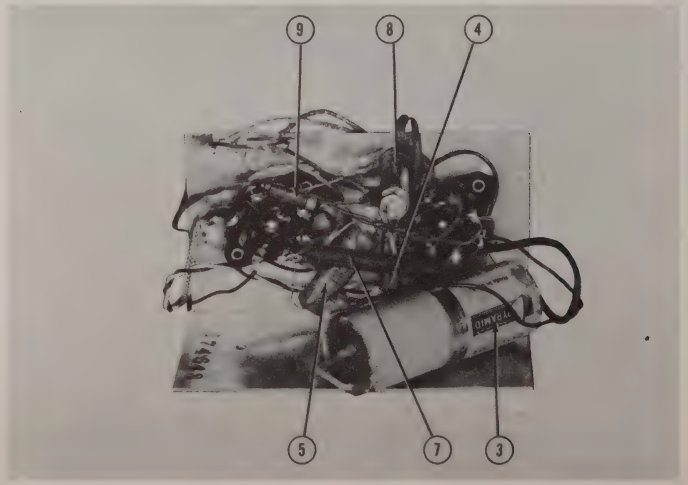
## DIAL LIGHT

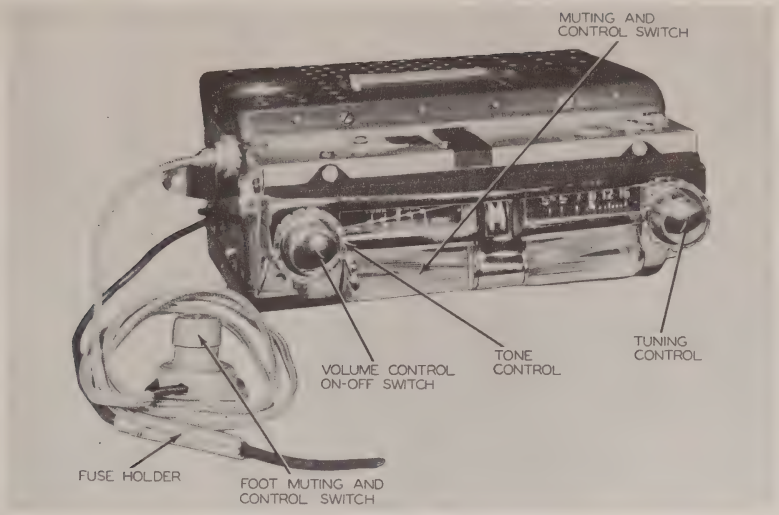
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: ESPEY PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 13 | Bayonet | 6-8 | 0.15 | Brown | | | Type 47 |

## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW






FORD MODEL 6MF080

| | |
|---|---|
| **TRADE NAME** | Ford Model 6MF080 (Chassis 6CA1) |
| **SUPPLIER** | Ford Motor Car Co., Detroit, Michigan |
| **TYPE SET** | Superheterodyne Dual Unit Automotive Set with Automatic Tuning |
| **TUBES** (SIX) | Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7E6 Det.-AVC-AF, 7C5 Power Output, 7Y4 Rectifier. |
| **POWER SUPPLY** | 6.3 Volts DC |
| RATING | 5.7 Amps. @ 6.3 VDC |
| **TUNING RANGE—BROADCAST** | 540-1600KC |

**ALIGNMENT INSTRUCTIONS**

Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Plug foot volume control in its socket during alignment. For dummy ant. connect two 30 MMF. capacitors in series and place across the output of the signal generator. Connect receiver ant. at the junction of the capacitors. This value of dummy ant. must be used to insure proper tracking when installed in car. If calibration is off after completing adjustments, it can be corrected by loosening dial scale mounting screws and sliding scale to desired position. If cores are adjusted, apply speaker cement to core screws. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #6 (signal grid) of 7B8. Low side to chassis. | 265KC | High freq. end | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| See Above Note | High side to ant. lead. Low side to chassis. | 535KC | 535KC | " | A5 | " " " " |
| " | " | 1200KC | Tune for maximum output. | " | A6,A7, A8. | " " " " |
| The following procedure should be followed only when a core or coil has been replaced. | | | | | | |
| See Above Note | High side to ant. lead. Low side to chassis. | 1700KC | High freq.end | Across voice coil | A5,A6, A7,A8. | Screw the cores completely out of the antenna, R.F., converter and oscillator coils. Adjust A5, A6, A7 and A8 for maximum output. Replace cores to their approximate original positions. |
| " | " | 1200KC | 1200KC | " | A9 | Adjust core for maximum output |
| " | " | " | Tune for maximum output. | " | A10,all A12 | Adjust cores for maximum output |
| " | " | 600KC | " | " | A13 | Rock tuning control and adjust for maximum output. Check receiver at 1200KC. If weak or off calibration, repeat last three steps. |
| After all adjustments have been made, reinstall in car. Allow to warm up for approx. 15 minutes and, with antenna extended, tune in weak station near 1200KC and adjust A8 for maximum output. | | | | | | |

**HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1946 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: FORD PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 7A7 | 7A7 | 8V | |
| 2 | Converter | 7B8 | 7B8 | 8X | |
| 3 | IF Amp. | 7A7 | 7A7 | 8V | |
| 4 | Det.-AVC-AF | 7B8 | 7B8 | 8W | |
| 5 | Power Output | 7C5 | 7C5 | 6L6 | |
| 6 | Rectifier | 7Y4 | 7Y4 | 6X5 | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: FORD PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 40 | 350 | 22-1387 | DY-2X20-350 | EL-212 | AF32K4A | UP4CJ5 | FP369 | ■ Filter |
| B | 10 | 350 | | | | | | | ▲ " |
| C | 20 | 25 | | M-25-25 | | | | TC26 | Cath. Bypass |
| 8 | .006 | 1600 | 22-1448 | XTIMS10.006 | TR-28 | 1689-006 | MD16D8 | CW333 | Buffer |
| 9 | .5 | 120 | 22-903 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | Mash Filter |
| 10 | .5 | 120 | 22-903 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | " " |
| 11 | .005 | 600 | 22-838 | S-6-005 | TC-28 | 684-005 | DT6D5 | TP406 | Output Plate Bypass |
| 12 | .003 | 600 | 22-1180 | S-6-003 | TC-23 | 684-003 | DT6D3 | TP406 | Tone Compensation |
| 13 | .01 | 600 | 22-1170 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Audio Coupling |
| 14 | .02 | 200 | 22-1270 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Tone Compensation |
| 15 | .005 | 600 | 22-838 | S-6-005 | TC-28 | 684-005 | DT6D5 | TP406 | Audio Coupling |
| 16 | .05 | 200 | 22-250 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 17 | .1 | 200 | 22-190 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Screen Bypass |
| 18 | .1 | 200 | 22-190 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | RF Cath. Bypass |
| 19 | .02 | 200 | 22-1270 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Tone Compensation |
| 20 | 250 | 500 | 22-192 | MO.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC440 | Audio Plate Bypass |
| 21 | 100 | 500 | 22-182 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC255 | Fixed Padder |
| 22 | 100 | 500 | 22-182 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC255 | Osc. Grid Capacitor |
| 23 | 350 | | 22-147c | | | | | | Fixed Trimmer Cer. |
| 24 | 1000 | 500 | | MO.5-21 | 1FM-21 | 1467-001 | 1W5D1 | MC455 | RF Coupling |
| 25 | 4000 | 500 | | MW.5-24 | 1FM-24 | 1467-004 | 1D5D4 | MC463 | AVC Filter |
| 26 | 150 | 500 | 22-1137 | MO.5-315 | 1FM-315 | 1468-00015 | 5W5T15 | MC235 | Fixed Tuning |

## CONTROLS

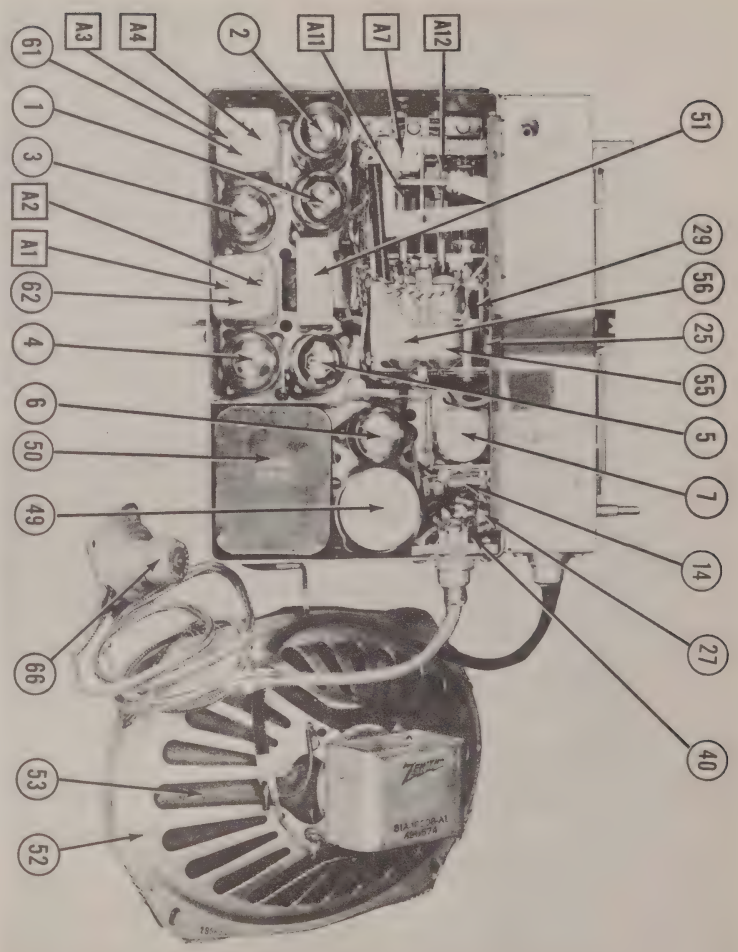
| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: FORD PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 27A | 1.5 Meg. | 1 | 63-1333 | | | | Tone Control - See Note |
| B | 250KΩ | 1 | | | | | Volume Control - See Note |
| C | Switch | | | | | | Off-On Switch on Volume Control-See Note |
| 28 | 800Ω | 1 | 63-1379 | | | | Sensitivity Control |

Note-Tone and Volume Controls ganged together and operated by concentric shafts.

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: FORD PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 29 | 330K | ½ | 63-1392 | BTS-330K | Or.-Or.-Yl. AVC Network |
| 30 | 18KΩ | ½ | 63-1411 | BTS-18KΩ | Br.-Gray-Or. RF Plate Load |
| 31 | 330KΩ | ½ | 63-1392 | BTS-330K | Or.-Or.-Yl. AVC Network |
| 32 | 68KΩ | ½ | 63-1396 | BTS-68K | Blue-Gray-Or. Oscillator Grid |
| 33 | 15KΩ | ½ | 63-1401 | BTS-15K | Br.-Grn.-Or. Oscillator Plate |
| 34 | 10 Meg. | ½ | 63-1413 | BTS-10 Meg. | Br.-Blk.-Blue AVC Network |
| 35 | 100Ω | ½ | 63-1414 | BW-½-100 | Br.-Blk.-Br. IF Cathode |
| 36 | 1 Meg. | ½ | 63-1390 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 37 | 32KΩ | ½ | 63-1393 | BTS-32K | Or.-Or.-Or. Screen Dropping |
| 38 | 1 Meg. | ½ | 63-1390 | BTS-1 Meg. | Br.-Blk.-Grn. 1st AF Grid Muting |
| 39 | 15 Meg. | ½ | 63-1400 | BTS-15 Meg. | Br.-Grn.-Blue 1st AF Grid Muting |
| 40 | 22KΩ | ½ | 63-1395 | BTS-22K | Red-Red-Or. Tone Compensation |
| 41 | 330KΩ | ½ | 63-1392 | BTS-330K | Or.-Or.-Yl. 1st AF Plate Load |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | FORD PART No. | IRC PART No. | |
| 42 | 330KΩ | ½ | 63-1392 | BTS-330K | Or.-Or.-Yl. Output Grid |
| 43 | 120Ω | ½ | 63-1410 | BW-½-120 | Br.-Red-Br. Output Cathode |
| 44 | 270Ω | 1 | | BT-1-270 | Red-Vi.-Br. Output Cathode-See Note 1 |
| 45 | 47KΩ | ½ | 63-1417 | BTS-47K | Yl.-Vi.-Or. Tone Compensation |
| 46 | 82Ω | ½ | 63-1399 | BW-½-82 | Gray-Red-Blk. Hash Suppression |
| 47 | 82Ω | ½ | 63-1399 | BW-½-82 | Gray-Red-Blk. " " |
| 48 | 1800Ω | 2 | 63-1363 | BT-2-1800 | Br.-Gray-Red Filter |

Note 1 - Some Models use a 120Ω resistor in this application.

## VIBRATOR

| ITEM No. | TYPE | INPUT VOLTS | FREQUENCY | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | FORD PART No. | MALLORY PART No. | RADIART PART No. | |
| 49 | Interrupter | 6.3 | 115~ | 190-20 | 859 | 5301 | |

## TRANSFORMER (VIBRATOR)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | FORD PART No. | STANCOR PART No. | THORDASON PART No. | |
| 50 | 6.7 VDC @ 3.3A. | 520 VCT @ .048A. | | | 95-914 | | T-22R20† | †Drill new mounting holes. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | FORD PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 51 | 4400Ω | 3.1Ω | 370Ω | .6Ω | 95-915 | A-3850* | T-22S46* | | *Bend mounting tabs down, insert through slots and bend over. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | FORD PART No. | JENSEN PART No. | | |
| 52A | FIELD | VC IMP. | 49-574‡ | | | ‡Some models may use a dynamic speaker with 6V. Field Coil |
| B | PM | 3.6Ω | 49-539 | | | Alternate speaker. |
| 53 | CONE DIA. | VC DIA. | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT | | | |
| | 6-1/8" x 9-1/8" | 3/4" | | | | |

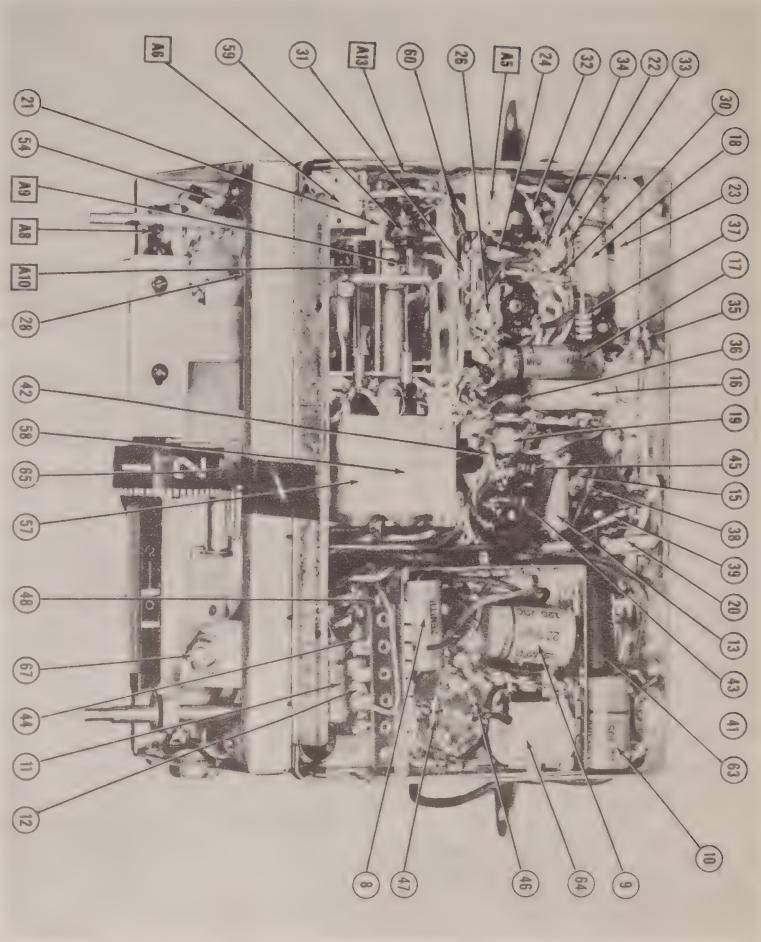
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | FORD PART No. | MEISSNER PART No. | |
| 54 | Ant. Choke | 1Ω | | S8819 | | |
| 55 | Preselect Coil | | 14.5Ω | S12060 | | |
| 56 | RF Coil | | 1Ω | S12060 | | |
| 57 | Det. Coil | | 1Ω | S12060 | | |
| 58 | Osc. Coil | | 2.5Ω | S12053 | | |
| 59 | Osc. Padder | 4.5Ω | 2.5Ω | S11231 | | |
| 60 | Osc. Trimmer | 1Ω | | S11228 | | |
| 61 | Input IF | 60Ω | 60Ω | 95-416 | | |
| 62 | Output IF | 6Ω | | 95-442 | | |
| 63 | "A" Choke | 0Ω | | S11236 | | |
| 64 | Vib. Choke | 0Ω | | 20-213 | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | FORD PART No. | | |
| 65 | Bayonet | 6-8 | 0.4 | White | | | Type 55 |

# CHASSIS—BOTTOM VIEW



NOTE: POSITIVE ON BATTERY GROUNDED.

VOLTAGE READINGS

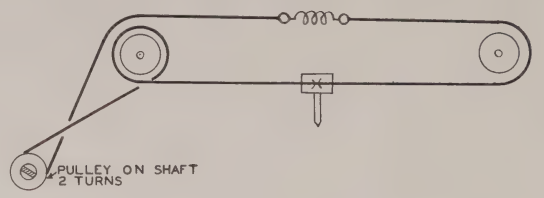
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7A7 | −6 V.DC | 157 V.DC | 83V.DC | 2 V.DC | 0V. | −2V.DC | 2V.DC | 0V. |
| 2 | 7B8 | 0V. | 230V.DC | 175V.DC | −47 V.DC | 83V.DC | −2V.DC | 2 V.DC | −6V.DC |
| 3 | 7A7 | −6V.DC | 230V.DC | 83V.DC | 0V. | 0V. | −2V.DC | .7 V.DC | 0V. |
| 4 | 7B6 | − 6V.DC | 107 V.DC | −2V.DC | 0V. | −45V.DC | −.45V.DC | 0V. | 0V. |
| 5 | 7C5 | −6V.DC | 260V.DC | 230V.DC | 8 V.DC | 0V. | 0V. | 12 V.DC | 0V. |
| 6 | 7Y4 | 0V. | 0V. | 295V.AC | 0V. | 0V. | 295 V.AC | 268V.DC | −6V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7A7 | .3Ω | 348KΩ | 363KΩ | 150Ω | 0Ω | 1.4 MEG. | 150Ω | 0Ω |
| 2 | 7B8 | 0Ω | 330KΩ | 345KΩ | 61KΩ | 363KΩ | 1.4 MEG. | 150Ω | .3Ω |
| 3 | 7A7 | .3Ω | 330KΩ | 363KΩ | 0Ω | 0Ω | 1 MEG. | 93Ω | 0Ω |
| 4 | 7B6 | .3Ω | 660KΩ | 1.5 MEG. | 0Ω | 185KΩ | 185KΩ | 0Ω | 0Ω |
| 5 | 7C5 | .3Ω | 330KΩ | 330KΩ | 250Ω | 300KΩ | 350KΩ | 360Ω | 0Ω |
| 6 | 7Y4 | 0Ω | INF. | 360Ω | INF. | INF. | 325Ω | 330KΩ | .3Ω |

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




TONE SCALE DRIVE CORD

PUSHBUTTON ADJUSTMENTS

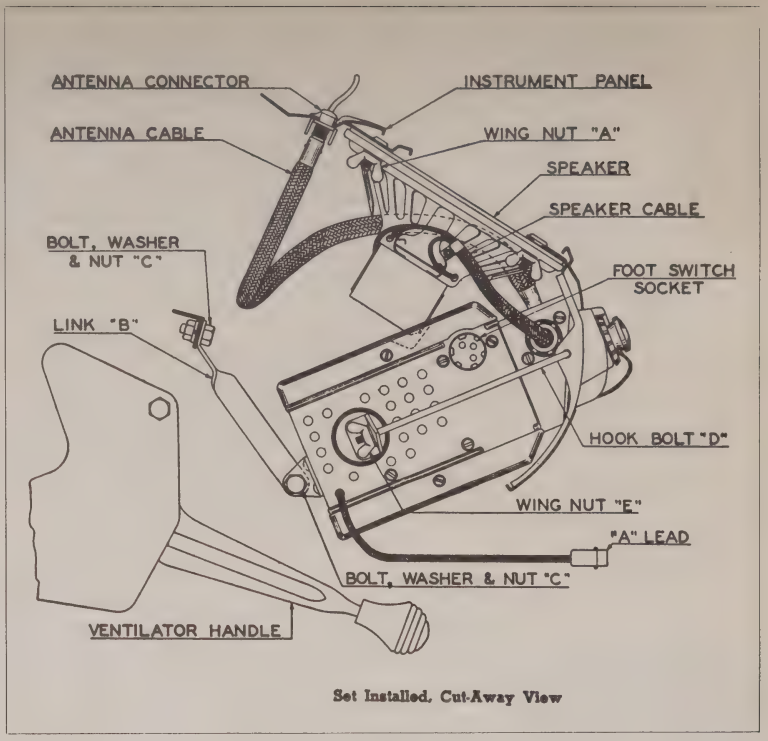
There are five automatic tuning positions which may be adjusted to five desired stations. Adjust as follows:

1. Press station selector bar until number 1 appears in station indicator window.
2. Pull manual tuning knob outward to engage the automatic mechanism.
3. Select the station desired and tune to its frequency by turning tuning knob. Tune very carefully for clearest reception.
4. Press station selector bar and tune in station desired for No. 2 position. Use same procedure for positions No. 3, 4 and 5.

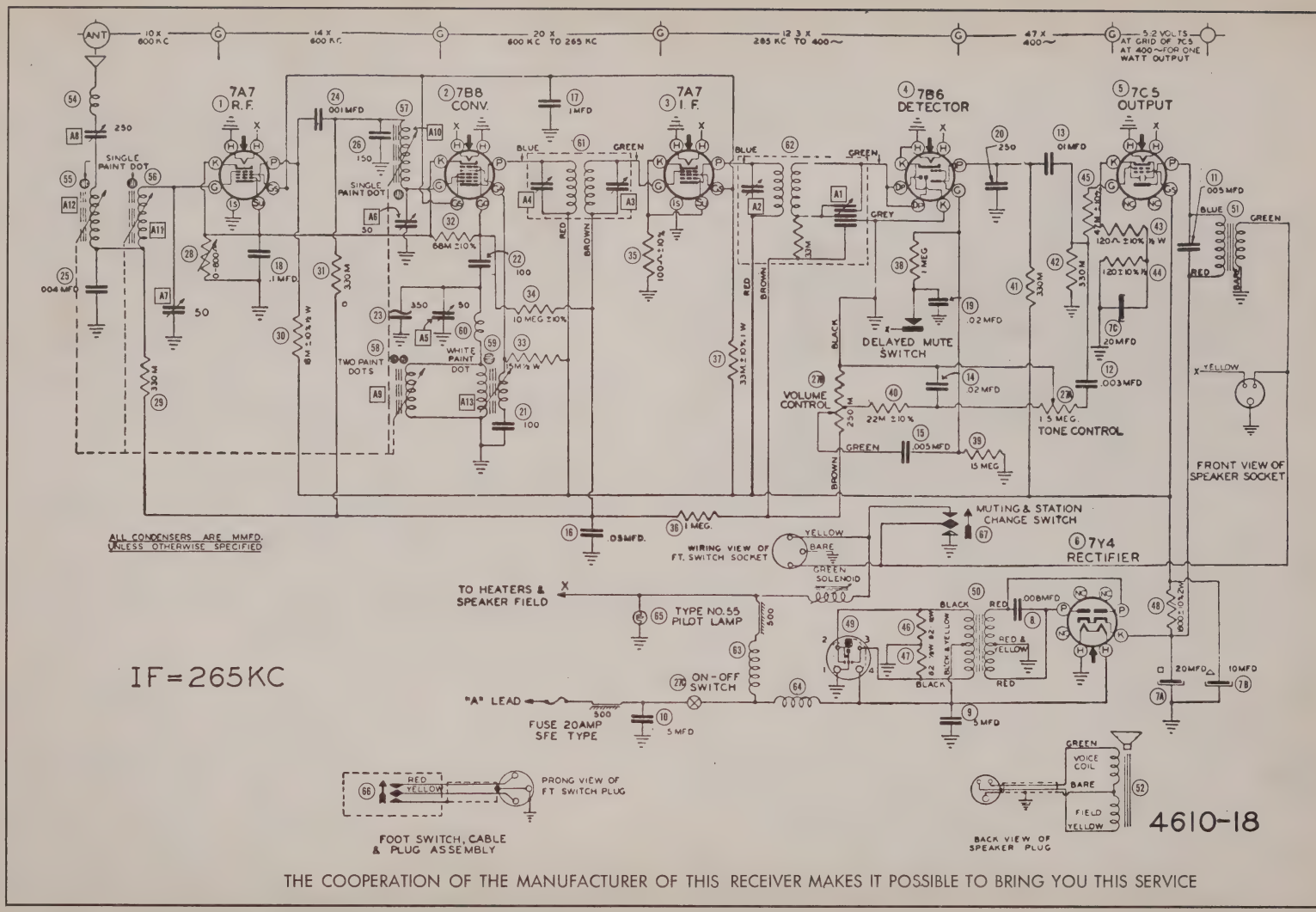
## PARTS LIST AND DESCRIPTIONS (Continued)

### MISCELLANEOUS

| ITEM No. | PART NAME | FORD PART No. | NOTES |
|---|---|---|---|
| 66 | Foot Switch | S12040 | Switch, Cable & Plug Assby. |
| 67 | Switch | S11270 | Hand Selector & Muting Assby. |
| A5 | Trimmer Cap. | 22-1378 | Osc. Adj. |
| A6 | " " | 22-1377 | Det. Adj. |
| A7 | " " | 22-1376 | RF Adj. |
| A8 | " " | 22-1375 | Ant. Adj. |
| | Dial Scale | 26-330 | Manual Tuning |
| | Escutcheon | 57-1029 | |
| | Dial Pointer | 59-151 | |
| | " Glass | 192-82 | 2 Used |
| | Selector Knob | 46-528 | L.H. |
| | " " | 46-582 | R.H. |
| | Knob | 46-524 | Tone Control |
| | " | 46-527 | Volume Control |
| | " | 46-525 & 46-526 | Tuning & Trim |




**Set Installed, Cut-Away View**


ANT
10 X 600 KC
14 X 600 KC
20 X 600 KC TO 265 KC
12 3 X 265 KC TO 400~
47 X 400~
5.2 VOLTS AT GRID OF 7C5 AT 400~ FOR ONE WATT OUTPUT
1 7A7 R.F.
2 7B8 CONV.
3 7A7 I.F.
4 7B6 DETECTOR
5 7C5 OUTPUT
6 7Y4 RECTIFIER
SINGLE PAINT DOT
TWO PAINT DOTS
WHITE PAINT DOT
DELAYED MUTE SWITCH
VOLUME CONTROL
TONE CONTROL
MUTING & STATION CHANGE SWITCH
ON-OFF SWITCH
TYPE NO.55 PILOT LAMP
TO HEATERS & SPEAKER FIELD
"A" LEAD
FUSE 20AMP SFE TYPE
WIRING VIEW OF FT. SWITCH SOCKET
FRONT VIEW OF SPEAKER SOCKET
ALL CONDENSERS ARE MMFD. UNLESS OTHERWISE SPECIFIED
IF=265KC
FOOT SWITCH, CABLE & PLUG ASSEMBLY
PRONG VIEW OF FT SWITCH PLUG
BACK VIEW OF SPEAKER PLUG
4610-18

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

HAMMARLUND MODEL SP-400-X

TRADE NAME Hammarlund Model SP-400-X

MANUFACTURER Hammarlund Mfg. Co., 460 W. 34th Street, New York, N.Y.

TYPE SET AC Operated 5 Band Superheterodyne Communications Receiver

TUBES (EIGHTEEN) Types, 6K7 1st RF Amp., 6K7 2nd RF Amp., 6L7 1st Det., 6J7 HF Osc., 6K7 1st IF Amp., 6SK7 2nd IF Amp., 6SK7 3rd IF Amp., 6H6 2nd Det., 6N7 Noise Limiter, 6SJ7 BF Osc., 6SK7 AVC Amp., 6H6 AVC Rectifier, 6J5 1st AF Amp., 6F6 AF Driver, (2) 6F6 AF Output, 5U4G & 5Y3GT Rectifiers.

POWER SUPPLY 105-125 Volts AC or 6 Volt Storage Battery (A Supply), 5-45 Volt "B" Batteries, 1-45 Volt "C" Batteries.

AC RATING .146 Amps. @ 117V AC

BATTERY RATING Filament Supply - 6.25 Amps. @ 6V DC
Plate Supply - 117MA @ 225V DC
Screen Supply - 4.5MA @ 90V DC
C Bias Supply - 10MA @ 45V DC

TUNING RANGE - BROADCAST 540-1240 KC, 1.24 - 2.86 MC SHORT WAVE 2.85 - 6.3 MC, 6.3 - 14.0 MC, 13.4 - 30.0 MC.

Note: Voltages and resistance readings taken in the number 1 position of the band switch. Readings for the beat frequency oscillator (tube #10) taken in the CW position. Controls set as follows: Crystal selectivity - off; Limiter - on; Sensitivity - maximum; AVC - on; Signal - mod.; Audio gain - maximum; Send - Receive Sw. - receive.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6K7 | 0V. | 0V. | 230V.DC | 86V.DC | 0V. | 91V.DC | 6.7V.AC | 0V. | -7V.DC |
| 2 | 6K7 | 0V. | 0V. | 230V.DC | 90V.DC | 0V. | 93V.DC | 6.7V.AC | 0V. | -8V.DC |
| 3 | 6L7 | 0V. | 0V. | 226VDC | 96V.DC | -4.95VDC | 0V. | 6.7V.AC | 0V. | -11V.DC |
| 4 | 6J7- | 0V. | 0V. | 122V.DC | 122V.DC | 122V.DC | 0V. | 6.7V.AC | 0V. | -3V.DC |
| 5 | 6K7 | 0V. | 0V. | 215V.DC | 106V.DC | 0V. | 0V. | 6.7V.AC | 0V. | -7V.DC |
| 6 | 6SK7 | 0V. | 0V. | 0V. | -7VDC | 0V. | 106V.DC | 6.7VAC | 218V.DC | |
| 7 | 6SK7 | 0V. | 0V | 0V. | -3.3V.DC | 0V. | 108V.DC | 6.7V.AC | 223V.DC | |
| 8 | 6H6 | 0V. | 0 V. | -4.5V.DC | 4V DC | -4.5V.DC | 0V | 6.7VAC | 4V. DC | |
| 9 | 6N7 | 0V. | 0V. | 4V.DC | -8V.DC | -8V.DC | 4V.DC | 6.7VAC | -8V.DC | |
| 10 | 6SJ7 | 0V. | 0V. | 0V. | -1.35VDC | 0V. | 52V.DC | 6.7V.AC | 165V.DC | |
| 11 | 6SK7 | 0V | 0V. | 0V. | -3.3V.DC | 0V. | 102V.DC | 6.7VAC | 215V.DC | |
| 12 | 6H6 | 0V. | 0V. | -1.9V.DC | 0V. | -1.9V.DC | 0V. | 6.7VAC | 0V. | |
| 13 | 6J5 | 0V. | 0V. | 100V.DC | 0V. | -1V.DC | -3.4VDC | 6.7VAC | 0V. | |
| 14 | 6F6 | 0V. | 0V. | 218V.DC | 218V.DC | -13V.DC | -19.8V.DC | 6.7VAC | 0V. | |
| 15 | 6F6 | 0V. | 0V. | 395V.DC | 395V.DC | 0V. | 405V.DC | 6.7VAC | 38.5VDC | |
| 16 | 6F6 | 0V. | 0V. | 395V.DC | 395VDC | 0V | 0V | 6.7VAC | 38.5VDC | |
| 17 | 544G | 0V. | 425VDC | 0V | 475AC | 0V. | 475AC | 0V | 425DC | |
| 18 | 5Y3GT | 0V. | 310V.AC | 0V. | -240VDC | 0V | -240VDC | 0V | 310VAC | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6K7 | 0Ω | 0Ω | 16.7KΩ | 11KΩ | 0Ω | 9.1KΩ | .2Ω | 0Ω | 1.1MEG. |
| 2 | 6K7 | 0Ω | 0Ω | 16.7KΩ | 11KΩ | 0Ω | 9.1KΩ | .2Ω | 0Ω | 1.1MEG. |
| 3 | 6L7 | 0Ω | 0Ω | 18.5KΩ | 38KΩ | 43KΩ | INF. | .2Ω | 0Ω | 460KΩ |
| 4 | 6J7 | 0Ω | 0Ω | 28KΩ | 28KΩ | 28KΩ | INF. | .2Ω | .8Ω | 45KΩ |
| 5 | 6K7 | 0Ω | 0Ω | 18.5KΩ | 11KΩ | 0Ω | INF. | .2Ω | 0Ω | 650KΩ |
| 6 | 6SK7 | 0Ω | 0Ω | 0Ω | 270KΩ | 0Ω | 11KΩ | .2Ω | 18.5KΩ | |
| 7 | 6SK7 | 0Ω | 0Ω | 0Ω | 9KΩ | 0Ω | 62KΩ | .2Ω | 18.5KΩ | |
| 8 | 6H6 | 0Ω | 0Ω | 195KΩ | 220KΩ | 195KΩ | INF. | .2Ω | 220KΩ | |
| 9 | 6N7 | 0Ω | 0Ω | 220KΩ | 1MEG. | 1MEG. | 220KΩ | .2Ω | 103KΩ | |
| 10 | 6SJ7 | 0Ω | 0Ω | 0Ω | 50Ω | 0Ω | 44Ω | .2Ω | 70KΩ | |
| 11 | 6SJ7 | 0Ω | 0Ω | 0Ω | 9KΩ | 0Ω | 62KΩ | .2Ω | 18.5KΩ | |
| 12 | 6H6 | 0Ω | 0Ω | 31KΩ | 0Ω | 31KΩ | INF. | .2Ω | 0Ω | |
| 13 | 6J5 | 0Ω | 0Ω | 63KΩ | INF. | 470KΩ | 278Ω | .2Ω | 0Ω | |
| 14 | 6F6 | 0Ω | 0Ω | 17KΩ | 17KΩ | 480KΩ | 1.6KΩ | .2Ω | 0Ω | |
| 15 | 6F6 | 0Ω | 0Ω | 17.8KΩ | 17.8KΩ | 300Ω | 17.6KΩ | .2Ω | 670Ω | |
| 16 | 6F6 | 0Ω | 0Ω | 17.8KΩ | 17.8KΩ | 300Ω | INF. | .2Ω | 670Ω | |
| 17 | 5U4G | INF. | 17.8KΩ | INF. | 51KΩ | INF. | 44KΩ | INF. | 17.8Ω | |
| 18 | 5Y3GT | INF. | 28Ω | INF. | 20.7KΩ | INF. | 20.7KΩ | INF. | 28Ω | |

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: HAMMARLUND PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | 1st RF Amp. | 6K7 | 6K7 | 7R | |
| 2 | 2nd RF Amp. | 6K7 | 6K7 | 7R | |
| 3 | 1st Det. | 6L7 | 6L7 | 7T | |
| 4 | HF Oscillator | 6J7 | 6J7 | 7R | |
| 5 | 1st IF Amp. | 6K7 | 6K7 | 7R | |
| 6 | 2nd IF Amp. | 6SK7 | 6SK7 | 7N | |
| 7 | 3rd IF Amp. | 6SK7 | 6SK7 | 7N | |
| 8 | 2nd Det. | 6H6 | 6H6 | 7C | |
| 9 | Noise Limiter | 6N7 | 6N7 | 8L | |
| 10 | BFO | 6SJ7 | 6SJ7 | 7K | |
| 11 | AVC Amp. | 6SK7 | 6SK7 | 7N | |
| 12 | AVC Rectifier | 6H6 | 6H6 | 7C | |
| 13 | 1st AF Amp. | 6J5 | 6J5 | 7K | |
| 14 | AF Driver | 6F8 | 6F8 | 7S | |
| 15 | AF Output | 6F8 | 6F8 | 7S | |
| 16 | AF Output | 6F8 | 6F8 | 7S | |
| 17 | Rectifier | 5U4G | 5U4G | 5T | |
| 18 | Rectifier | 5Y3GT | 5Y3GT | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: HAMMARLUND PART No. | REPLACEMENT DATA: SOLAR PART No. | REPLACEMENT DATA: SPRAGUE PART No. | REPLACEMENT DATA: AEROVOX PART No. | REPLACEMENT DATA: CORNELL-DUBILIER PART No. | REPLACEMENT DATA: MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 19 | 1 | 1000 | 23643-4 | XCGX10-1 | PC-11 | 1010-1000-1 | TLA10010 | | Filter |
| 20 | 16 | 600 | 23642-13 | D-16-600 | AP-16 | GL600-16 | KR616 | | " |
| 21A | 8 | 450 | 23642-28 | D-3X8-450 | PLS-868 | GL450-8-8-8 | KR5Q8A | RM265 | Filter-Red,Neg.-Blk. " -Blu.," -Yel. " -Grn.," -Br. |
| B | 8 | 450 | | | | | | | |
| C | 8 | 450 | | | | | | | |
| 22A | 8 | 450 | 23642-28 | D-3X8-450 | PLS-868 | GL450-8-8-8 | KR5Q8A | RM265 | Filter-Red,Neg.-Blk. " -Blu.," -Yel. " -Grn.," -Br. |
| B | 8 | 450 | | | | | | | |
| C | 8 | 450 | | | | | | | |
| 23 | 40 | 150 | 6171 | M-40-150 | UT-401 | PRS150-40 | BR4015 | TC48 | Cath. Bypass |
| 24 | .25 | 600 | 23912-38 | S-8-25 | TC-2 | 684-.25 | DT6P25 | TP420 | RF Bypass Pwr. Supp. |
| 25 | .25 | 600 | 23912-38 | S-8-25 | TC-2 | 684-.25 | DT6P25 | TP420 | " " " " |
| 26 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | Audio Coupling |
| 27 | .02 | 600 | 23912-1 | S-8-02 | TC-12 | 684-02 | DT6S2 | TP412 | " " |
| 28 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | AVC Filter |
| 29 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | AVC Amp. Screen Bypass |
| 30 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | B+ Plate Decoup. |
| 31 | .25 | 600 | 23912-38 | S-8-25 | TC-2 | 684-.25 | DT6P25 | TP420 | AVC Filter CW Position |
| 32 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 3rd IF Screen Bypass |
| 33 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 3rd IF Grid Bypass |
| 34 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 2nd IF Plate Decoup. |
| 35 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 2nd IF Screen Bypass |
| 36 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 2nd IF Grid Bypass |
| 37 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 1st IF Plate Decoup. |
| 38 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 1st IF Screen Bypass |
| 39 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 1st Det. Plate Decoup. |
| 40 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | HF Osc. Plate Bypass |
| 41 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 1st Det. Screen Bypass |
| 42 | .02 | 600 | 23912-1 | S-8-02 | TC-12 | 684-02 | DT6S2 | TP412 | Mixer Anc Filter |
| 43 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 2nd RF Screen Bypass |
| 44 | .02 | 600 | 23912-1 | S-8-02 | TC-12 | 684-02 | DT6S2 | TP412 | 2nd RF AVC Filter |
| 45 | .05 | 600 | 23912-2 | S-8-05 | TC-15 | 684-05 | DT6S5 | TP415 | 1st RF Screen Bypass |
| 46 | .02 | 600 | 23912-1 | S-8-02 | TC-12 | 684-02 | DT6S2 | TP412 | 1st RF AVC Filter |
| 47 | .02 | 600 | 23912-1 | S-8-02 | TC-12 | 684-.2 | DT6S2 | TP412 | AVC Filter |
| 48 | 51 | 500 | 23001-59 | MOS.5-45 | MS-45 | 1469-00005 | 5R5C5 | MCb225 | Limiter Plate Bypass |
| 49 | 51 | 500 | 23003-50 | MOS.5-45 | MS-45 | 1469-00005 | 5R5Q5 | MCb235 | Osc. Grid Capacitor |
| 50 | 95 | 500 | 6195 | | | | | | " Coupling |
| 51 | 620 | 500 | 23005-86 | | | | | | RF Coupling |
| 52 | 620 | 500 | 23005-86 | | | | | | " " |
| 53 | 300 | 500 | 23003-105D | MOS.5-33 | MS-33 | 1469-0003 | 5R5T3 | MCb241 | " " |
| 54 | 300 | 500 | 23003-105D | MOS.5-33 | MS-33 | 1469-0003 | 5R5T3 | MCb241 | " " |
| 55 | 620 | 500 | 23005-86 | | | | | | " " |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: HAMMARLUND PART No. | REPLACEMENT DATA: SOLAR PART No. | REPLACEMENT DATA: SPRAGUE PART No. | REPLACEMENT DATA: AEROVOX PART No. | REPLACEMENT DATA: CORNELL-DUBILIER PART No. | REPLACEMENT DATA: MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 56 | 673 | 500 | | | | | | | Fixed Padder |
| 57 | 1500 | 500 | | | | | | | " " |
| 58 | 3300 | 500 | | | | | | | " " |
| 59 | 300 | 500 | | | | | | | " " |
| 60 | Fixed Trimmer: Three Ceramic Capacitors in Series. May not be used in all models. | | | | | | | | |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: HAMMARLUND PART No. | REPLACEMENT DATA: MALLORY PART No. | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 61A | 250KΩ | 1 | 4919 | MR44 | D13-130 | M-64-Z | Audio Gain Control. |
| B | Shaft | | Not Req. | Not Req. | A | Not Req. | Attach to 61A per instructions |
| 62A | 50KΩ | 1 | 5023 | MR35 | D11-123 | M-44-S | Sensitivity Control |
| B | Shaft | | Not Req. | Not Req. | A | Not Req. | Attach to 62A per instructions |
| 63 | 1000Ω | 2 | 4932 | CM1P # | W-1000 | 43-1000 | Meter Adj. Control. |

# Mount with insulating washers Mallory # 203 & 212.

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: HAMMARLUND PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 64 | 500KΩ | 1/3 | 4959 | BTS-470K | AVC Network |
| 65 | 10KΩ | 1/2 | 19309-73 | BTS-10K | Br.-Blk.-Or. AVC Network |
| 66 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red 1st RF Screen Dropping |
| 67 | 20Ω | 1/2 | 19301-183 | BW-2-22 | Red-Blk.-Blk Parasitic Suppressor |
| 68 | 500KΩ | 1/3 | 4959 | BTS-500K | AVC Network |
| 69 | 10KΩ | 1/2 | 19309-73 | BTS-10K | Br.-Blk.-Or. AVC Network |
| 70 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red 2nd RF Screen Dropping |
| 71 | 20Ω | 1/2 | 19301-183 | BW-2-22 | Red-Blk.-Blk. Parasitic Suppressor |
| 72 | 500KΩ | 1/2 | 4959 | BTS-470K | AVC Network |
| 73 | 10KΩ | 1/2 | 19309-73 | BTS-10K | Br.-Blk.-Or. AVC Network |
| 74 | 50KΩ | 1/3 | 4960 | BTS-47K | Injection Grid |
| 75 | 25KΩ | 2 | | BTS-2-27K | Red-Grn.-Or. Mixer Screen Dropping |
| 76 | 50KΩ | 1/3 | 4960 | BTS-47K | Oscillator Grid |
| 77 | 12KΩ | 2 | 19304-44 | BTS-2-12K | Br.-Red-Or. Oscillator Plate Decoupling |
| 78 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red Mixer " " |
| 79 | 10KΩ | 1/2 | 19309-73 | BTS-10K | Br.-Blk.-Or. AVC Network See Note 1 |
| 80 | 24Ω | 1/2 | 19301-178 | BTS-22K | Red-Yl.-Blk. Selectivity Network See Note 1 |
| 81 | 51Ω | 1/2 | 19301-187 | BTS-47K | Grn.-Br.-Blk " " " " " |
| 82 | 300Ω | 1/2 | 19301-196 | BW-2-270 | Or.-Blk.-Br. " " " " " |
| 83 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red " " " " " |
| 84 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red 1st IF Screen Decoupling |
| 85 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red " " Plate " |
| 86 | 10KΩ | 1/2 | 19309-73 | BTS-10K | Br.-Blk.-Or. AVC Network |
| 87 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red 2nd IF Screen Decoupling |
| 88 | 2KΩ | 1/2 | 19301-206 | BTS-2200 | Red-Blk.-Red " " Plate " |
| 89 | 10KΩ | 1/2 | 19309-73 | BTS-10K | Br.-Blk.-Or. AVC Network |
| 90 | 51KΩ | 1 | 19303-182 | BTA-47K | Grn.-Br.-Or. 3rd IF Screen Dropping |
| 91 | 75KΩ | 1/2 | 19301-215 | BTS-68K | Vi.-Grn.-Or. Diode Load |
| 92 | 47KΩ | 1/2 | | BTS-47K | Yl.-Vi.-Or. " " |
| 93 | 240KΩ | 1/2 | 19301-155 | BTS-220K | Red-Yl.-Yl. Detector Cathode |
| 94 | 4Ω | 5 | 19431-1 | A6-3 | Series Limiter Filament |
| 95 | 510KΩ | 1/2 | 19309-159 | BTS-470K | Grn.-Br.-Yl. BFO Screen Dropping |
| 96 | 5KΩ | 1/2 | | BTS-4700 | Grn.-Blk.-Red " Plate " |
| 97 | 47KΩ | 1/2 | | BTS-47K | Yl.-Vi.-Or. " " Load |
| 98 | 51KΩ | 1 | 19303-182 | BTA-47K | Grn.-Br.-Or. AVC Amp. Screen Dropping |
| 99 | 2 Meg. | 1/2 | 19301-169 | BTS-2.2 Meg. | Red-Blk.-Grn. " Network |
| 100 | 4Ω | 5 | 19431-1 | A6-3 | Series Pilot Light |
| 101 | 510KΩ | 1/2 | 19309-159 | BTS-470K | Grn.-Br.-Yl. 1st AF Grid |
| 102 | 300Ω | 1/2 | 19301-196 | BW-2-270 | Or.-Blk.-Br. Bias Network |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | HAMMARLUND PART No. | IRC PART No. | |
| 103 | 170Ω | 1/2 | | BTS-180 | Br.-Vi.-Red " " |
| 104 | 3000Ω | 1 | 19303-169 | BTA-3300 | Or.-Blk.-Red Bias Network |
| 105 | 47KΩ | 1 | | BTA-47K | Yl.-Vi.-Or. 1st AF Plate Load |
| 106 | 510KΩ | 1/2 | 19303-159 | BTS-470K | Grn.-Br.-Yl. AF Driver Grid |
| 107 | 750 | 10 | 19430-30 | AB-750 | Output Cathode |
| 108 | 1cK | 10 | 4946 | ABA-20,000 | Bleeder See Note 2 |
| 109 | 18K | 10 | 3997 | AB-5000 & DHA-12,000 | Filter See Note 3 |

Note 1: In IF selectivity transformer can.

Note 2: On IRC replacement set slider at 18000Ω from one end.

Note 3: " " " DHA 12,000, set slider at center. Add AB-5000 in series.

## FILTER CHOKE

| ITEM NO. | RATINGS | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D.C. RESISTANCE | INDUCTANCE (0 CURRENT 1000~ | HAMMARLUND PART NO. | STANCOR PART NO. | THORDARSON PART NO. | |
| 110 | .150A | 150Ω | 12 Henries | 2981 | | T20C54* | *Drill new mounting holes. |
| 111 | .107A | 1140Ω | 7o Henries | 4819 | | T20C54* | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 4 | HAMMARLUND PART No. | STANCOR PART No. | THORDARSON PART No. | |
| 112 | 117V AC @1.46A Tapped @105V 115V & 125V | 950 CT @.150A Tapped @310V AC @.010A | 5.2V AC @2.0A SEC. 3 5.2V AC @1.8A | 6.7V AC @3.35A | 4801 | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | DC RES. | | TURNS RATIO | HAMMARLUND PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. To ½ SEC. | | | | | |
| 113 | 630Ω | 690Ω CT | 1.35 to 1 | 4887 | A-4405* | T20D77* | | *Drill new mounting holes. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | HAMMARLUND PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. 1 | PRI. | SEC. 1 | | | | | |
| 114 | 1c,cJ Ω CT | 500Ω SEC. 2 6000Ω | 620Ω CT. | 58Ω SEC. 2 500Ω | 4886 | A-3304* | T2DS76* | | * Drill new mounting holes. |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | HAMMARLUND PART No. | MEISSNER PART No. | |
| 115 | B1 Ant.Coil | 1 | 5Ω | 29520-G1 | | |
| 116 | B2 " " | .5Ω | 0Ω | 29529-G1 | | |
| 117 | B3 " " | .3Ω | 0Ω | 29532-G1 | | |
| 118 | B4 " " | .1Ω | 0Ω | 29535-G1 | | |
| 119 | B5 " " | 0Ω | 0Ω | 29538-G1 | | |
| 120 | B1 RF Coil | .3Ω | 5.5Ω | 29521-G1 | | |
| 121 | B2 " " | .2Ω | .1Ω | 29530-G1 | | |
| 122 | B3 " " | .1Ω | 0Ω | 29533-G1 | | |
| 123 | B4 " " | .1Ω | 0Ω | 29536-G1 | | |
| 124 | B5 " " | .1Ω | 0Ω | 29539-G1 | | |



# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

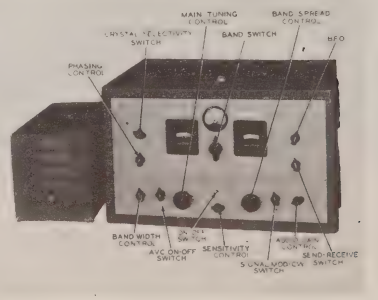
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | HAMMARLUND PART No. | MEISSNER PART No. | |
| 125 | B1 Det.Coil | .3Ω | 5.5Ω | 29521-G1 | | |
| 126 | B2 " " | .2Ω | .1Ω | 29530-G1 | | |
| 127 | B3 " " | .1Ω | 0Ω | 29533-G1 | | |
| 128 | B4 " " | .1Ω | 0Ω | 29536-G1 | | |
| 129 | B5 " " | .1Ω | 0Ω | 29539-G1 | | |
| 130 | B1 Osc.Coil | | 4Ω | 29528-G1 | | |
| 131 | B2 " " | | 1Ω | 29531-G1 | | |
| 132 | B3 " " | | .4Ω | 29534-G1 | | |
| 133 | B4 " " | | 0Ω | 29537-G1 | | |
| 134 | B5 " " | | 0Ω | 29540-G1 | | |
| 135A | 1st IF | 7.5Ω | 1.5Ω | 29555-G1 | | |
| 135B | 2nd IF | | 1Ω | 29555-G1 | | |
| 136 | 3rd IF | 12Ω | 1.5Ω | SA166A | | |
| 137 | 4th IF | 12Ω | 1.5Ω | SA166A | | |
| 138 | 5th IF | | | SA167A | | |
| 139 | BFO | | | SA169A | | |
| 140 | AVC IF | | | SA168A | | |
| 141 | RF Choke | 39Ω | | 609-1 | | |
| 142 | RF Choke | 39Ω | | 609-1 | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | HAMMARLUND PART No. | | |
| 143 | Screw | 6-8 | 0.15 | Brown | | | Type 40 |
| 144 | Screw | 6-8 | 0.15 | Brown | | | Type 40 |
| 145 | Screw | 6-8 | 0.15 | Brown | | | Type 40 |

## MISCELLANEOUS

| ITEM No. | PART NAME | HAMMARLUND PART No. | NOTES |
|---|---|---|---|
| 146 | Limiter Switch | 4916 | SPST Rotary Snap |
| 147 | Band Switch | | 10 Pole - 5 Position - 5 Sect. |
| 148 | On-Off, Switch | 2983-1 | DPST - Toggle |
| 149 | Band Width Cont. | | |
| 150 | Crystal | 6338 | Resonator Type (455KC) |
| 151 | Mod.-CW Sw. | 5733 | DPST Rotary Snap |
| 152 | Send-Rec. Sw. | 5729 | SPST " " |
| 153 | Phasing Cap. | SA-179 | 2-6 MMF (Each Sect.) |
| 154 | Main Tuning Cap. | | 4 Gang |
| 155 | Bandspread Cap. | | 4 Gang |
| 156 | BFO Var. Cap. | SA-170 | 9 MMF |
| 157 | Crystal Switch | 4911 | Wafer Type - 6 Position |



## ALIGNMENT INSTRUCTIONS

To set signal generator to the exact freq. of crystal, procede as follows; Turn Band Switch to to 2.85-6.3MC, main tuning dial near 2.85 making sure not to tune in a powerful local signal. Set the Crystal Selectivity switch to 3, phasing control at arrow, the AVC-MANUAL switch to AVC and advance SENSITIVITY to 10. Connect high side of signal generator to grid cap of the 6L7. Low side to chassis. Set signal generator at 455KC with modulation off. Adjust signal generator freq. slightly to produce maximum deflection of the "S" meter. Reduce sensitivity to "0" and turn modulation on. Do not change freq. of signal generator throughout IF alignment.

Before starting alignment set controls as follows; Set SENSITIVITY control to give half scale reading on output meter, AVC-MANUAL switch to MANUAL, SIGNAL-MOD-CW to MOD., SEND-REC. to REC., Band Switch to 2.85-6.3 MC, AUDIO GAIN to 10, CRYSTAL SELECTIVITY to OFF position, PHASING on arrow, LIMITER off, Band width to 3 and Band Spread Dial to 100. Keep input from signal generator at approx. 100 microvolts for all adjustments. Keep sensitivity control no higher than is necessary to obtain output reading. Have speaker connected throughout the alignment to monitor the signal. Connect one ant. terminal to chassis. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 200 MMF. | High side to grid cap of 6L7. Low side to chassis. | Crystal freq. (see pre-alignment instructions | 2.85-6.3MC | 2.85MC | 500Ω terminals at the rear of chassis. | A1,A2, A3,A4, A5,A6. | Adjust for maximum output. Reduce sensitivity control to give half scale deflection of output meter, if necessary. |
| 200 MMF. | " | Crystal Frequency | " | " | " | A7 | Set audio gain to give half scale deflection, sensitivity to 10, AVC-Manual to AVC. Adjust A8 for minimum output. "S" meter should peak at same time output meter dips. |
| 200 MMF. | " | " | " | " | " | A8 | Turn Signal - Mod-CW switch to CW,AVC-Manual to manual. Set beat oscillator to 0. Adjust A9 to give zero beat. Then turn BFO off. |
| Do not attempt the following step unless a frequency-modulated signal generator and oscilloscope are available. | | | | | | | |
| 200 MMF. | High side to grid cap of 6L7. Low side to chassis. | Freq. modulated at crystal freq. | 2.85-6.3MC | 2.85MC | Connect vert. amp. of scope to phono input terminals. | A9 | Note pattern, then turn crystal selectivity switch to position 1. Pattern will narrow but should remain symmetrical. If it does not remain symmetrical, adjust A7 for symmetry while rocking phasing control. Turn crystal off after adjusting A9. |
| 100 ohms | High side to ant. terminal. Low side to chassis. | 1200KC (Mod. off) | 540-1240KC | 1200KC | 500Ω terminals at the rear of chassis. | A10 | Set band width at 13. Turn BFO on. Adjust for zero beat. |
| 100 ohms | " | 590KC (Mod. off) | " | 590KC | " | A11 | Adjust for zero beat. Repeat last two steps until no further improvement can be made. |
| 100 ohms | " | 1200KC (Amplitude Mod. on) | " | 1200KC | " | A12,A13, A14. | Adjust for maximum output with BFO "off". |
| 100 ohms | " | 590KC (Mod. on) | " | 590KC | " | A15,A16 A17. | Adjust for maximum output. Repeat last two steps until no further increase can be obtained. |
| 100 ohms | " | 2.85MC (Mod. off) | 1.24-2.85MC | 2.85MC | " | A18 | Adjust for zero beat with BFO on. |
| 100 ohms | " | 1.3MC (Mod. off) | " | 1.3MC | " | A19 | Adjust for zero beat. Repeat last two steps until no further improvement can be made. |
| 100 ohms | " | 2.85MC (Mod. on) | " | 2.85MC | " | A20,A21 A22 | Adjust for maximum output with BFO off. |
| 100 ohms | " | 1.2MC (Mod. on) | " | 1.2MC | " | A23,A24 A25 | Adjust for maximum output. Repeat last two steps until no further increase can be obtained. |
| 100 ohms | " | 6.2MC (Mod. off) | 2.85-6.3MC | 6.2MC | " | A26 | Adjust for zero beat with BFO "on". |
| 100 ohms | " | 2.85MC (Mod. off) | " | 2.85MC | " | A27 | Adjust for zero beat. Repeat last two steps until no further improvement can be made. |
| 100 ohms | " | 6.2MC (Mod. on) | " | 6.2MC | " | A28,A29 A30 | Adjust for maximum output with BFO off. |
| 100 ohms | " | 2.85MC Mod. on) | " | 2.85MC | " | A31,A32 A33 | Adjust for maximum output. Repeat last two steps until no further increase can be obtained. |
| 100 ohms | " | 14.0MC (Mod. off | 6.3 - 14.0MC | 14.0MC | " | A34 | Adjust for zero beat with BFO on. |
| 100 ohms | " | 6.3MC (Mod. off) | " | 6.3MC | " | A35 | Adjust for zero beat. Repeat last two steps until no further improvement can be made. |
| 100 ohms | " | 14.0MC (Mod. on) | " | 14.0MC | " | A36,A37 A38 | Adjust for maximum output with BFO off. |
| 100 ohms | " | 6.3MC (Mod. off) | " | 6.3MC | " | A39,A40 A41 | Adjust for maximum output. Repeat last two steps until no further increase can be obtained. Check calibration. If off, repeat last four steps. |
| 100 ohms | " | 30.0MC (Mod. off | 13.4-30.0MC | 30.0MC | " | A42 | Adjust for zero beat with BFO on. |
| 100 ohms | " | 14.0MC (Mod. off) | " | 14.0MC | " | A43 | Adjust for zero beat. Repeat last two steps until no further improvement can be made. |
| 100 ohms | " | 30.0MC (Mod. on) | " | 30.0MC | " | A44,A45 A46 | Adjust for maximum output with BFO off. |
| 100 ohms | " | 14.0MC (Mod. on) | " | 14.0MC | " | A47,A48 A49 | Adjust for maximum output. Repeat last two steps until no further increase can be obtained. Check calibration. If off, repeat last four steps. |

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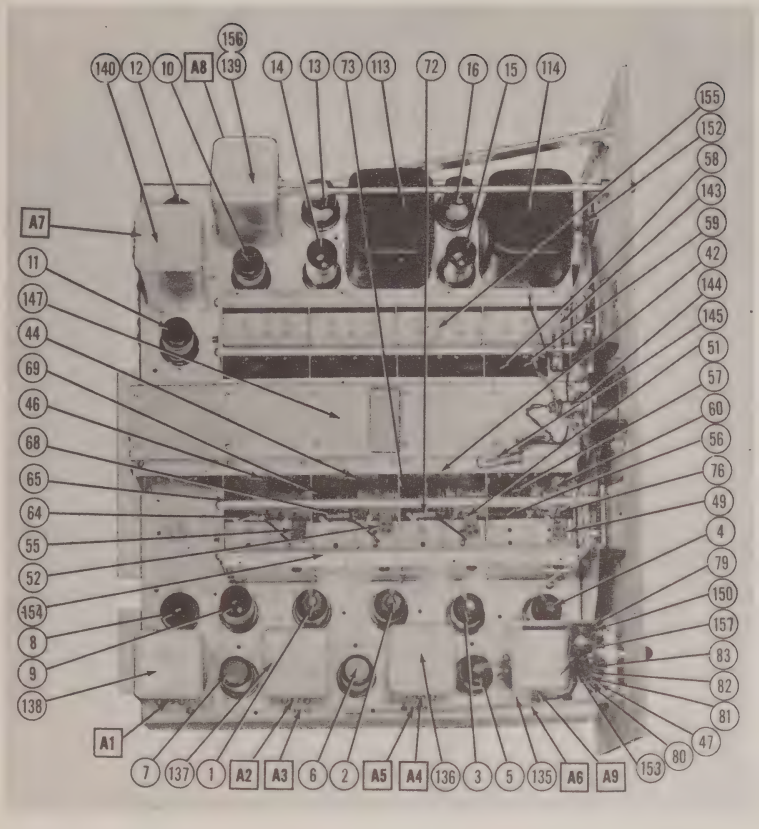
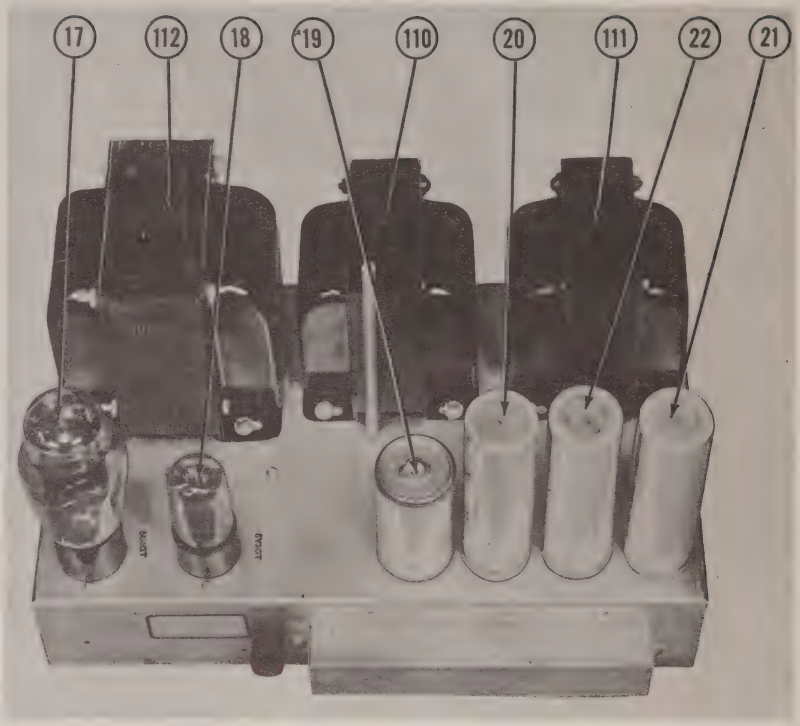
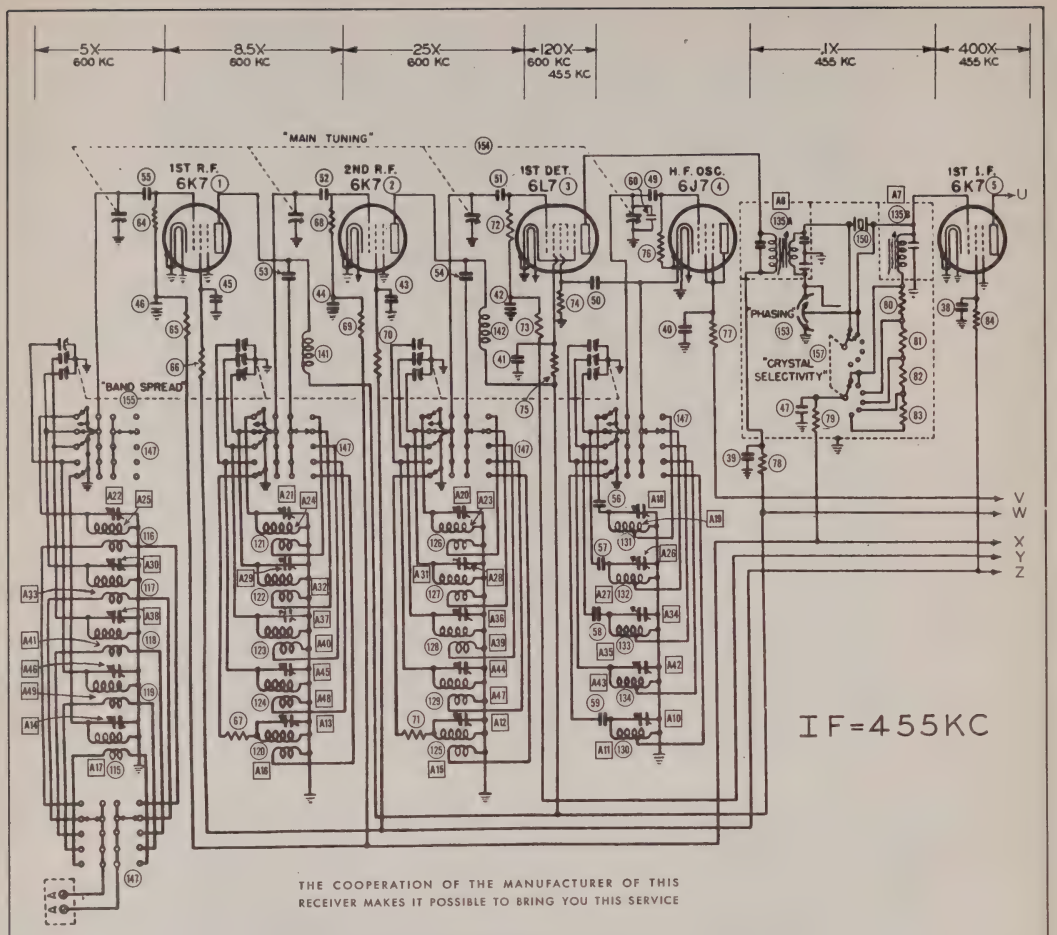
# CHASSIS—TOP VIEW



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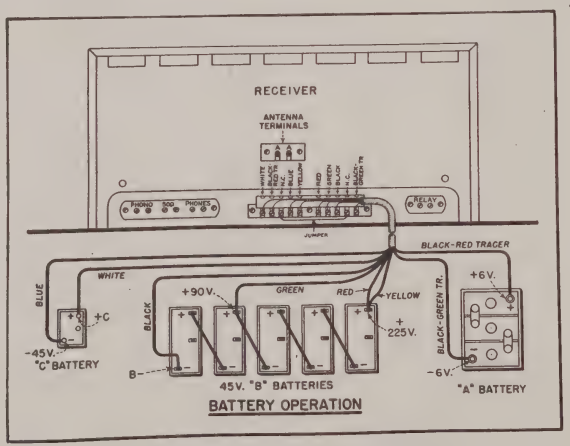
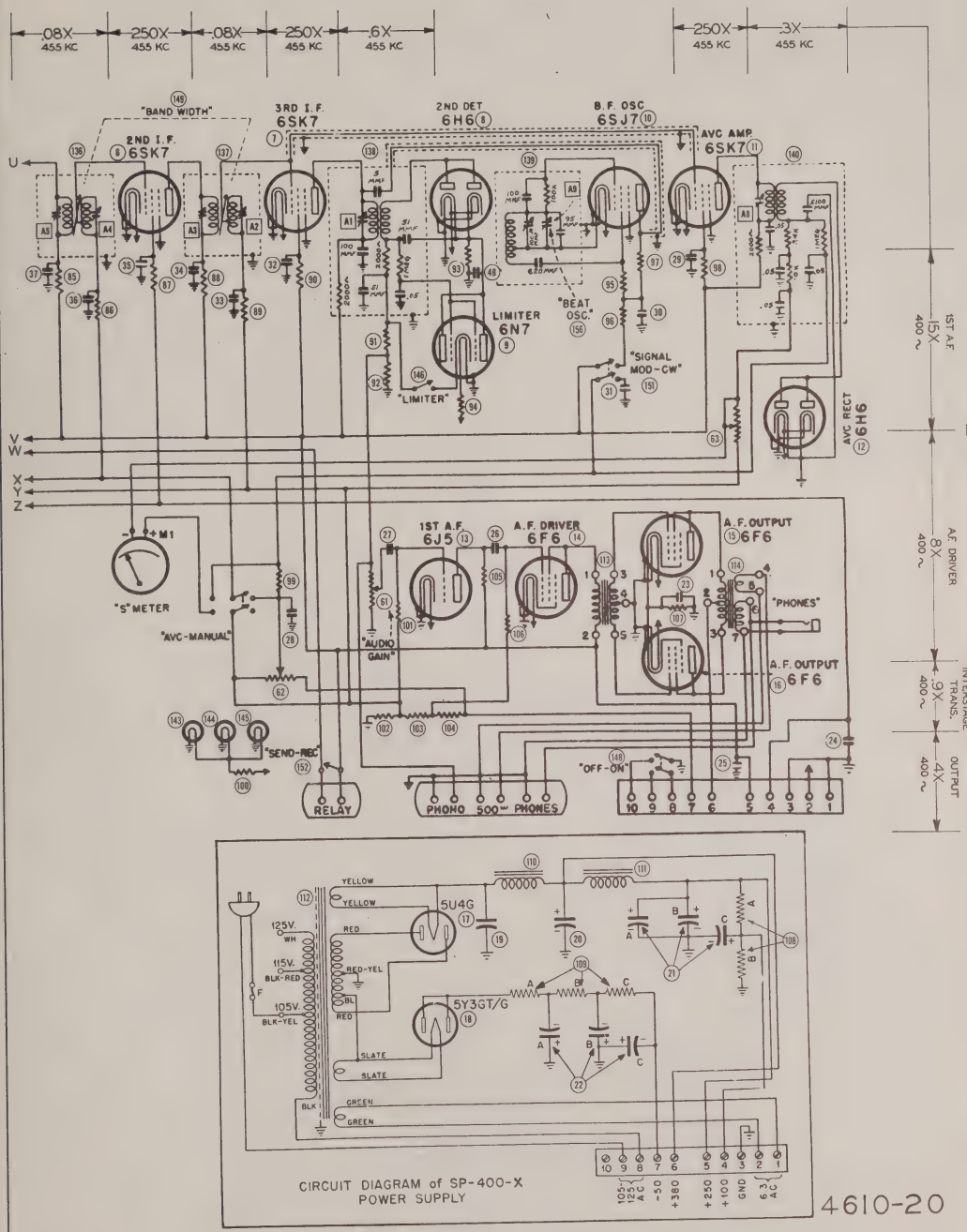



Connections for power cable—battery operation.

4610-20

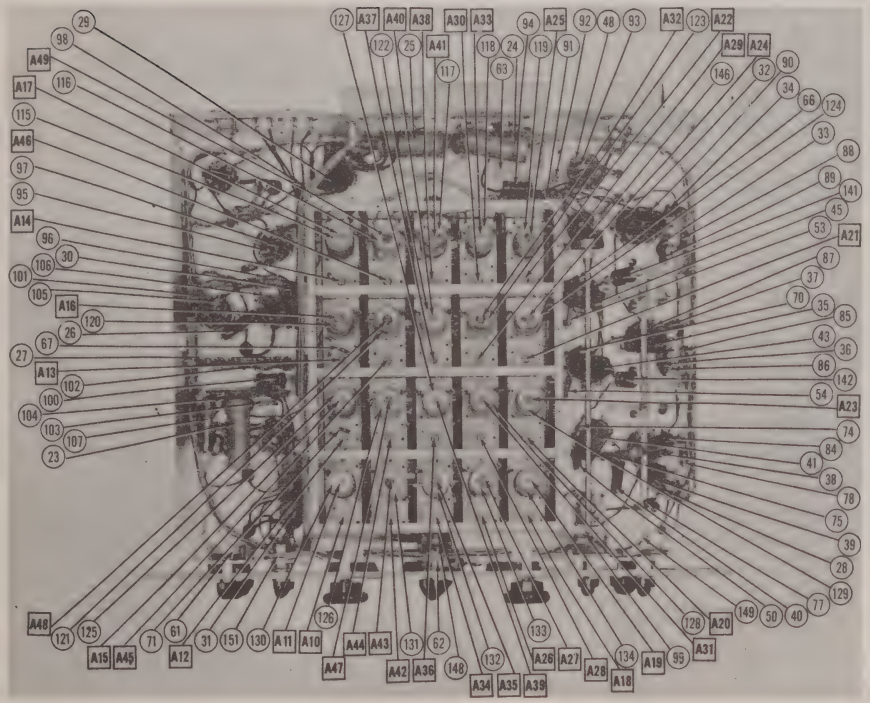
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

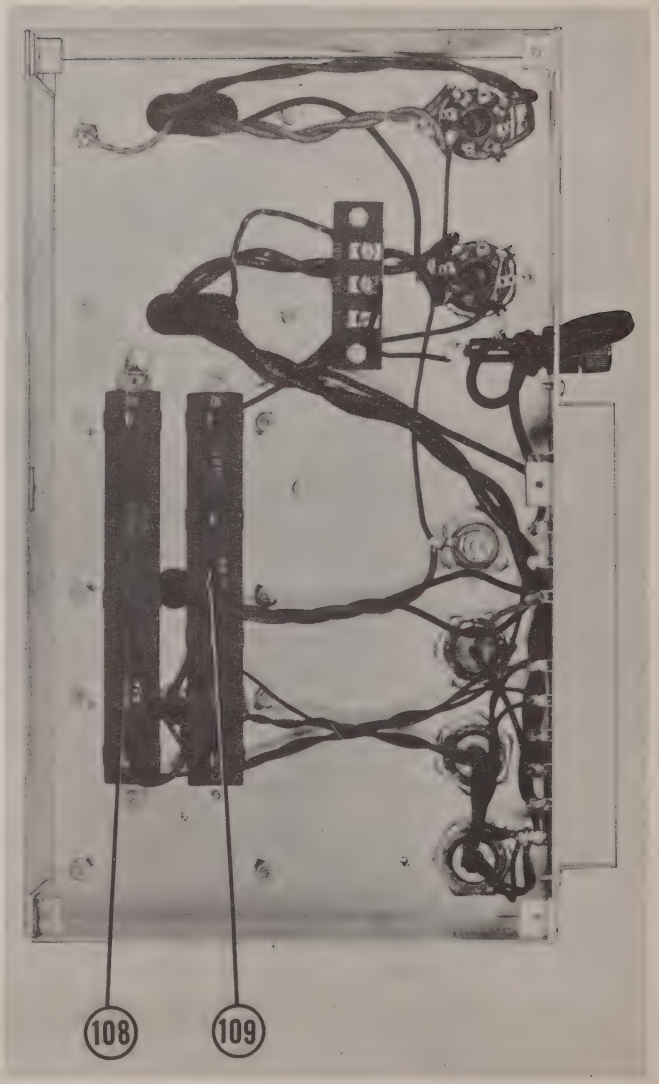



CIRCUIT DIAGRAM of SP-400-X POWER SUPPLY

4610-20

# CHASSIS—BOTTOM VIEW



HOWARD
MODEL 901AP

HOWARD
MODEL 901AP

HOWARD MODEL 901AP

| | |
|---|---|
| TRADE NAME | Howard, Model 901AP |
| MANUFACTURER | Howard Radio Co., 1735 Belmont Ave., Chicago, Ill. |
| TYPE SET | AC Operated Combination Auto. Phono.-Superheterodyne Receiver with Self Contained Loop Antenna |
| TUBES (FIVE) | Types 12SA7 Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC |
| TUNING RANGE—BROADCAST | 540-1600KC RATING .225 Amp. @ 117 Volts AC |

**ALIGNMENT INSTRUCTIONS**

To set pointer, turn variable fully closed and set pointer in horizontal position. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .05 | High side to pin #8 (signal grid) of 12SA7. Low side to B-. | 455KC | High freq. end. | Across voice coil. | A1,A2, A3,A4. | Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD to reduce hum modulation. |
| 200 MMF. | High side to ext. ant. lead. Low side to B-. | 1400KC | 1400KC | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | " | Tune for max-imum output. | " | A6 | " |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: HOWARD PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 12SA7 | 12SA7 | 8R | |
| 2 | IF Amp. | 12SK7GT | 12SK7GT | 8N | When replacing the 12SK7GT tube, it may |
| 3 | Det.-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | be necessary to add or remove the 1600Ω |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | resistor in the grid circuit of the IF |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | stage to obtain normal sensitivity. |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: HOWARD PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 6A | 40 | 150 | | M-2X40-150 | TA-440 | PRSA150-40-40 | BRD4415 | 2N511 | Filter |
| B | 40 | 150 | | | | | | | " |
| 7 | 25 | 25 | | M-25-25 | TA-25 | PRS25-25 | BR252A | TC26 | Cath. Bypass |
| 8 | .05 | 600 | | S-6-05 | TC-15 | 684-05 | DT6S5 | TP415 | Line Filter |
| 9 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Output Plate Bypass |
| 10 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 11 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Audio Plate Decoup. |
| 12 | .006 | 400 | | S-6-006 | TC-26 | 484-006 | DT6D6 | TP409 | Audio Coupling |
| 13 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Phono Bypass |
| 14 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 15 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | IF Cath. Bypass |
| 16 | .2 | 600 | | S-6-2 | TC-2 | 684-.2 | DT6P2 | TP429 | Line Isolation |
| 17 | 300 | 500 | | MO.5-33 | 1FM-33 | 1468-0003 | 5W5T3 | MC241 | Tone Compensation |
| 18 | 300 | 500 | | MO.5-33 | 1FM-33 | 1468-0003 | 5W5T3 | MC241 | IF Bypass Diode |
| 19 | 50 | 500 | | MO.5-45 | 1FM-45 | 1468-00005 | 5W5S5 | MC225 | Osc. Grid Capacitor |
| 20 | 300 | 500 | | MO.5-33 | 1FM-33 | 1468-0003 | 5W5T3 | MC241 | Audio Plate bypass |
| 46 | 300 | 500 | | MO.5-33 | 1FM-33 | 1468-0003 | 5W5T3 | MC241 | Tone Compensation * |
| 47 | 300 | 500 | | MO.5-33 | 1FM-33 | 1468-0003 | 5W5T3 | MC241 | " " |

*Not used in models above serial No. 4200.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: HOWARD PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 21A | 500KΩ | 1 | VC-0001 | MK401 | D13-133 | AM-6U-Z | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KES-3 | Attach to 21A per instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " " |

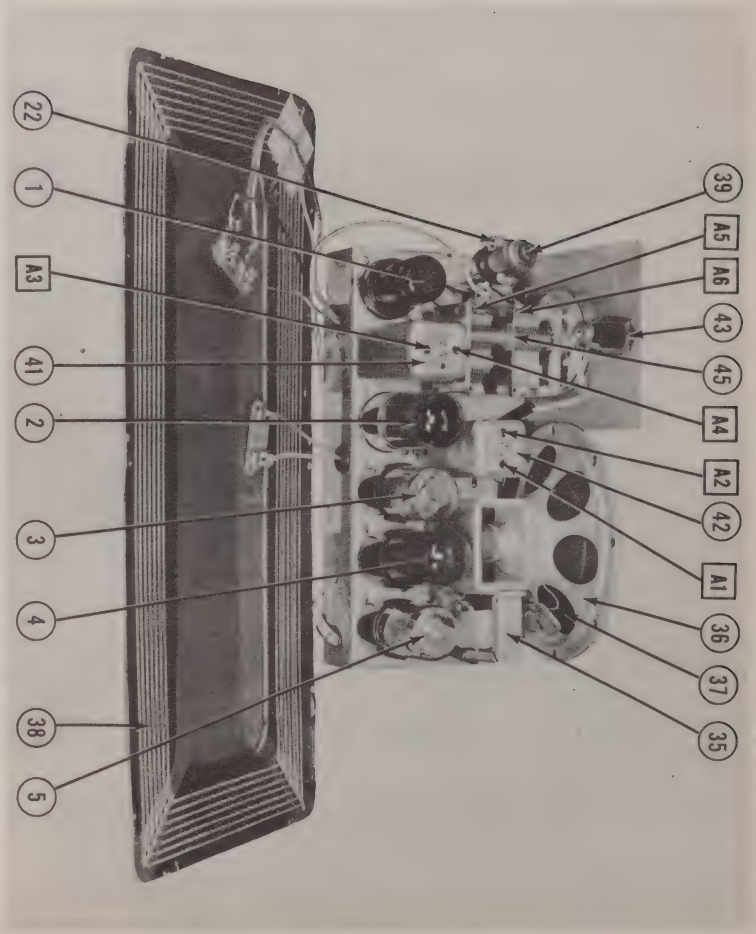
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: HOWARD PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 22 | 2200Ω | ½ | | BTS-2200 | Red-Red-Red Antenna Loading |
| 23 | 18KΩ | ½ | | BTS-18K | Br.-Gray-Or. Oscillator Grid |
| 24 | 470Ω | ½ | | BTS-470 | Yl.-Vi.-Br. IF Cathode |
| 25 | 2 Meg. | ½ | | BTS-2.2 Meg. | Red-blk.-Grn. AVC Network |
| 26 | 18KΩ | ½ | | BTS-18K | Br.-Gray-Or. Audio Voltage Divider |
| 27 | 1 Meg. | ½ | | BTS- 1 Meg. | Br.-blk.-Grn. Series Phono |
| 28 | 3.3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Or.-Grn. 1st AF Grid |
| 29 | 220KΩ | ½ | | BTS-220K | Red-Red-Yl. " " Plate Load |
| 30 | 56KΩ | ½ | | BTS-56K | Grn.-Blue-Or. " " " Decoupling |
| 31 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 32 | 150Ω | ½ | | BW-½-150 | Br.-Grn.-Br. " Cathode |
| 33 | 2000Ω | 1 | | BTA-2200 | Red-blk.-Red Filter |
| 34 | 50Ω | 1 | | BW-1-50 | Grn.-blk.-blk. Surge Limiter |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: HOWARD PART No. | STANCOR PART No. | THORDAR'N PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 35 | 2800Ω | 3.2Ω | 90Ω | .4Ω | TO-0001 | A-3576 | T22945 | |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA HOWARD PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD. | VC IMP. | | | | |
| 36 | PM | 3.5Ω | SK-0005 | ST-107 Mod.P5-V | | |
| | CONE DIA. | VC DIA. | | | | |
| 37 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA HOWARD PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 38 | Loop Ant. | | 1Ω | AN-0003 | | |
| 39 | Loop Load Coil | 2.2Ω | | LA-0004 | | |
| 40 | Osc. Coil | .5Ω | 3Ω | LA-0017 | | |
| 41 | Input IF | 28Ω | 27Ω | LI-0010 | | |
| 42 | Output IF | 27Ω | 27Ω | LI-0011 | | |

## DIAL LIGHT

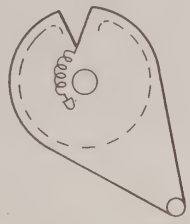
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA HOWARD PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 43 | Bayonet | 6-8 | 0.15 | Brown | LS-0001 | | Type 47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | HOWARD PART No. | NOTES |
|---|---|---|---|
| 44 | Switch | SW-0005 | Radio-Phono |
| 45 | 2-Gang Var. Cap | | Ant. & Osc. Trimmers Included |

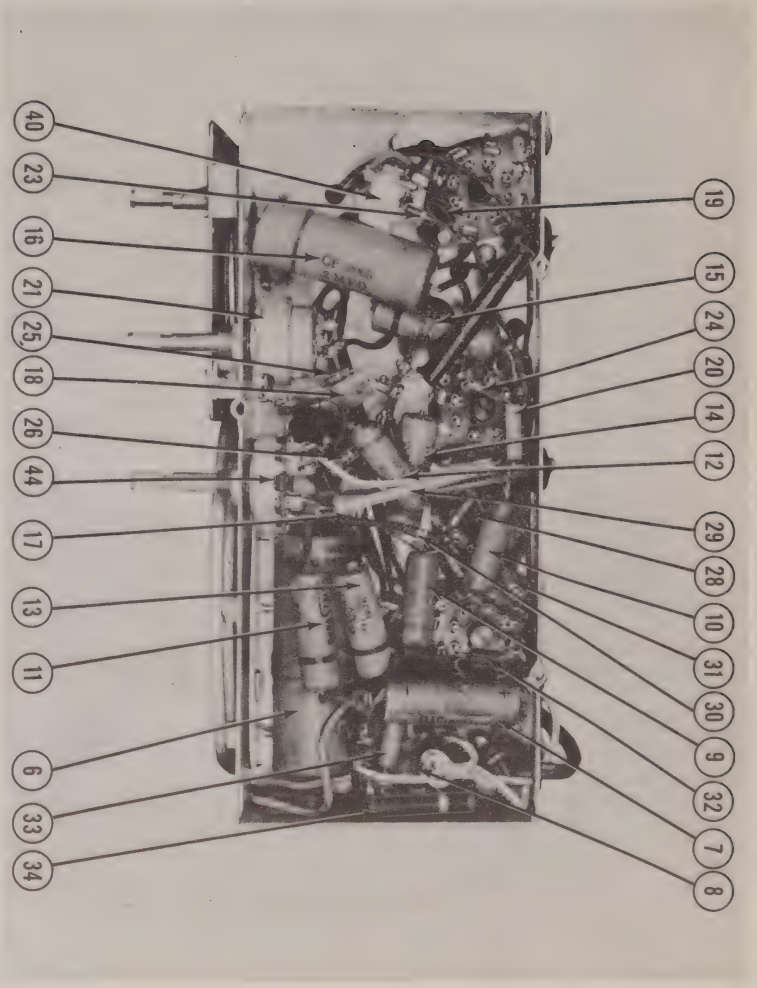
DISASSEMBLY INSTRUCTIONS

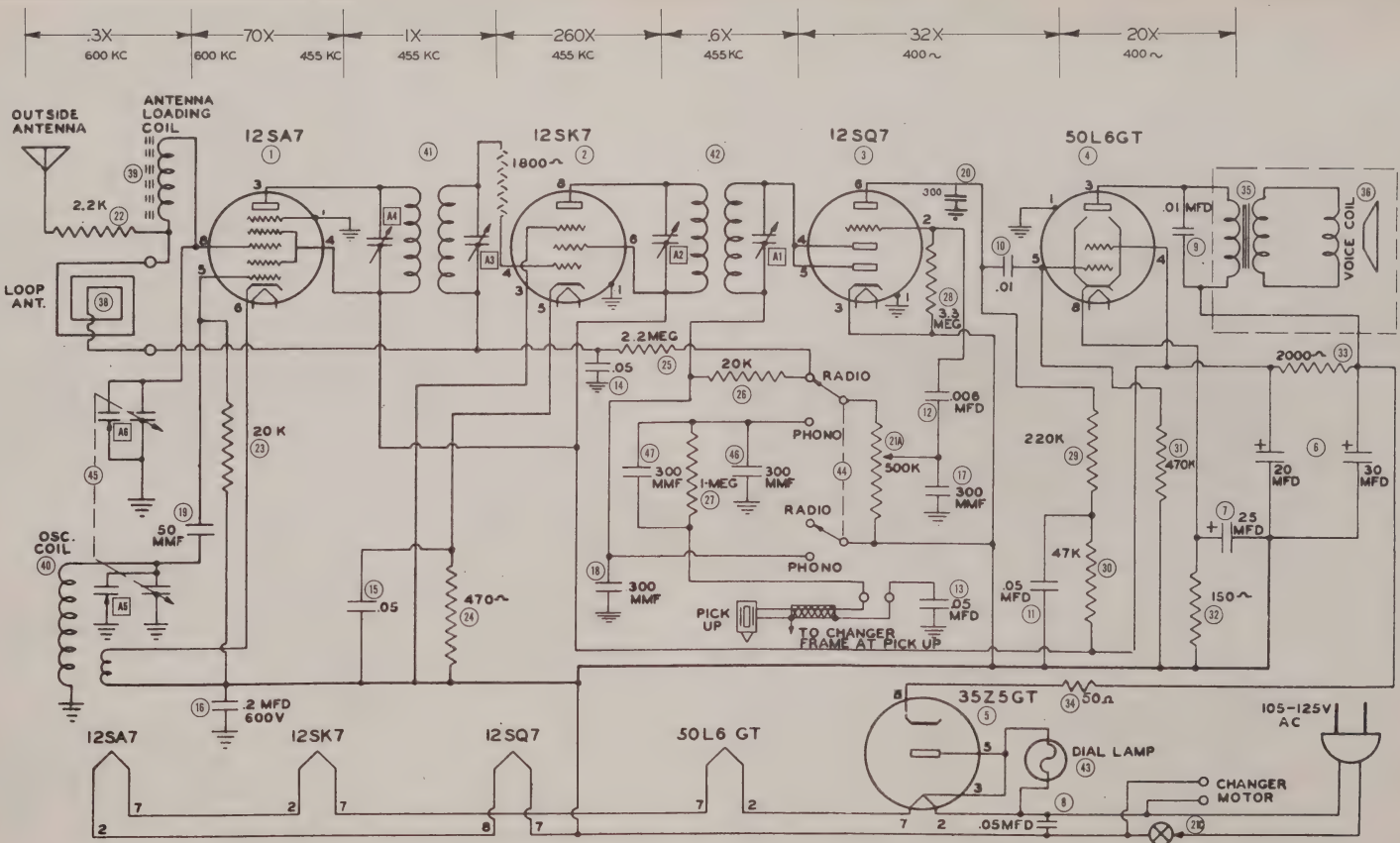
1. Remove the push-on type control knobs.
2. Remove three Phillips head screws holding motor board to cabinet. Remove motorboard.
3. Remove loop antenna leads from clips in bottom of cabinet.
4. Remove phono-pickup white leads from clips.
5. Remove the phono-motor leads from the chassis leads (white with blue tracer), by removing the two solderless connectors.
6. Remove the three hex head machine screws holding chassis to cabinet.
7. Loosen panel board inside cabinet to allow speaker and pilot light assemblies more freedom when removing chassis. Remove chassis.




DIAL CORD DRIVE

# CHASSIS—BOTTOM VIEW






IF=455KC

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 0V. | 12 V.AC | 86V.DC | 86V.DC | -4V.DC | 0V. | 25V.AC | -4V.DC |
| 2 | 12SK7GT | 0V. | 25 V.AC | 0V. | -4V.DC | 3.1V.DC | 86V.DC | 36.5V.AC | 86V.DC |
| 3 | 12SQ7GT | 0V. | -.8V.DC | 0V. | -5V.DC | -5V.DC | 57 V.DC | 12 V.AC | 0V. |
| 4 | 50L6GT | 0V. | 86 V.AC | 114 V.DC | 86 V.DC | 0V. | 0V. | 36.5V.AC | 5.4V.DC |
| 5 | 35Z5GT | 0V. | 117 V.AC | 113 V.AC | 0V. | 113 V.AC | 0V. | 86 V.AC | 120 V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | INF. | 11Ω | 30KΩ | 30KΩ | 23KΩ | .5Ω | 23Ω | 2.2 MEG. |
| 2 | 12SK7GT | INF. | 23Ω | 0Ω | 2.2 MEG. | 500KΩ | 30KΩ | 34Ω | 30KΩ |
| 3 | 12SQ7GT | INF. | 3.4 MEG. | 0Ω | 430 KΩ | 430KΩ | 300KΩ | 11Ω | 0Ω |
| 4 | 50L6GT | INF. | 77Ω | 30KΩ | 30KΩ | 360KΩ | 0Ω | 34Ω | 145Ω |
| 5 | 35Z5GT | INF. | 105Ω | 102Ω | 0Ω | 102Ω | INF. | 77Ω | 30KΩ |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-21

**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

JEFFERSON-TRAVIS
MODEL MR-2B

JEFFERSON-TRAVIS
MODEL MR-2B

JEFFERSON-TRAVIS MODEL MR-2B

| | |
|---|---|
| **TRADE NAME** | Jefferson-Travis Model MR-2B |
| **MANUFACTURER** | Jefferson-Travis Radio Mfg. Corp., 245 E. 23rd St., New York, N.Y. |
| **TYPE SET** | Batt. Operated-2 Band Superhet. Portable Marine Rcvr.- Self Contained Loop Antenna |
| **TUBES** (FIVE) | Types 1A7GT Conv., 1N5GT 1st IF Amp., 1N5GT 2nd IF Amp., 1H5GT Det-AVC-AF, 3Q5GT Power Output |
| POWER SUPPLY | 2-45 Volt "B" Batteries (Burgess Type B-30 or Equiv.) & 1.5 Volt "A" Battery (Burgess Type 4F or Equiv.) RATING 300MA @ 1.6 Volts DC & 15 MA @ 90 Volts DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC **SHORT WAVE** (Marine) 1600-4800KC |

**ALIGNMENT INSTRUCTIONS**

To set pointer turn variable fully closed and set pointer at last reference mark at right end of broadcast band. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| .1 MFD. | High side to grid cap of 1A7. Low side to chassis. | 455KC | BC | High freq. end | Across voice coil | A1,A2, A3,A4, A5,A6. | Adjust for maximum output. |
| | Loop | 1600KC | " | 1600KC | " | A7 | Connect output of signal generator to a few turns of wire and place about a foot from receiver loop. Adjust for maximum output. |
| | " | 1400KC | " | Tune for maximum output. | " | A8 | " |
| | " | 600KC | " | " | " | A9 | Rock variable and adjust for maximum output. Recheck A7 and A8. |
| | " | 4.8MC | Marine | 4.8MC | " | A10 | Adjust for maximum output. |
| | " | 4.6MC | " | Tune for maximum output. | " | A11 | " |
| | " | 1.8MC | " | " | " | A12 | Rock variable and adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: JEFFERSON TRAVIS PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1A7GT | 1A7GT | 7Z | |
| 2 | 1st IF Amp. | 1N5GT | 1N5GT | 5Y | |
| 3 | 2nd IF Amp. | 1N5GT | 1N5GT | 5Y | |
| 4 | Det.-AVC-AF | 1H5GT | 1H5GT | 5Z | |
| 5 | Power Output | 3Q5GT | 3Q5GT | 7L | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: JEFFERSON TRAVIS PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 25 | 25 | | M-25-25 | TA-25 | PRS25-25 | BR25A | TC35 | Bias Filter |
| 7 | .002 | 600 | | S-6-002 | TC-22 | 684-002 | DT6D2 | TP405 | Output Plate Bypass |
| 8 | .01 | 600 | | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Audio Coupling |
| 9 | .001 | 200 | | S-6-001 | TC-21 | 484-001 | DT6D1 | TP404 | " " |
| 10 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | RF Bypass Pwr. Supp. |
| 11 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | IF Grid Bypass |
| 12 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Conv. Plate Decoup. |
| 13 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Conv. Screen Bypass |
| 14 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Audio Plate Bypass |
| 15 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | IF Bypass Vol. Cont. |
| 16 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | IF Bypass Diode |
| 17 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Osc. Grid Capacitor |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: JEFFERSON-TRAVIS PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 18A | 1 Meg. | 1 | | MR53 | D13-137 | M-63-2 | Volume Control |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 18A per instructions |
| C | Switch | | | M26 | 41 | SW-A | " " " " " " |

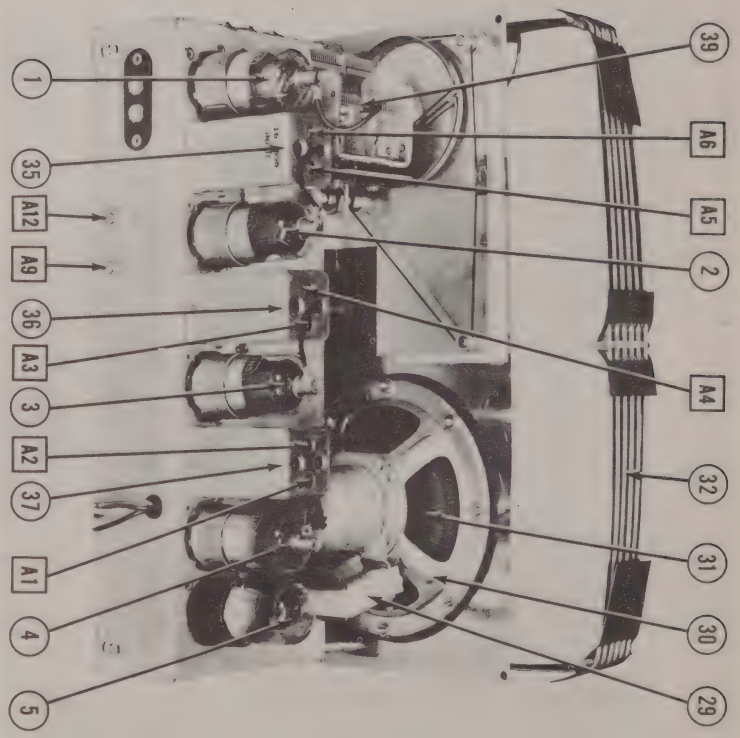
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: JEFFERSON TRAVIS PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 19 | 100KΩ | 1/2 | | BTS-100K | Br.-blk.-Yl. Oscillator Grid |
| 20 | 50KΩ | 1/2 | | BTS-47K | Grn.-blk.-Or. Mixer Screen Dropping |
| 21 | 1000Ω | 1/2 | | BTS-1000 | Br.-blk.-Red " Plate Decoupling |
| 22 | 500KΩ | 1/2 | | BTS-470K | Grn.-blk.-Yl. AVC Network |
| 23 | 2.2 Meg. | 1/2 | | BTS-2.2 Meg. | Red-Red-Grn. " " |
| 24 | 82KΩ | 1 | | BTA-82K | Gray-Red-Or. Diode Filter |
| 25 | 4.7 Meg. | 1/2 | | BTS-4.7 Meg. | Yl.-Vi.-Grn. 1st AF Grid |
| 26 | 1 Meg. | 1/2 | | BTS-1 Meg. | Br.-blk.-Grn. " " Plate Load |
| 27 | 500KΩ | 1/2 | | BTS-470K | Grn.-blk.-Yl. Output Grid |
| 28 | 250Ω | 2 | | BW-2-270 | Red-Grn.-Br. Bias. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: JEFFERSON TRAVIS PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 29 | 9,000Ω | 3.2Ω | 360Ω | .7Ω | | A-3879 * | T22S47 * | | * Bend mounting tabs down, file out slots and mount on original bracket. |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

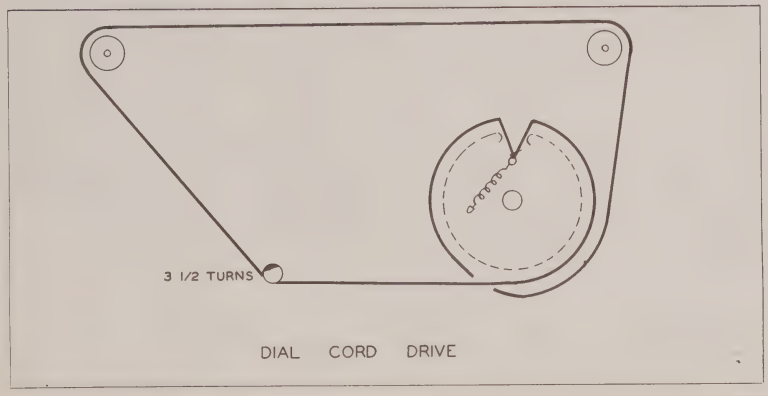
| ITEM No. | RATINGS | | REPLACEMENT DATA: JEFFERSON TRAVIS PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 30 | FIELD COIL DC RES. | VC LIP 6.5Ω | | ST-107 Mod.PC-A | | |
| 31 | VOICE COIL DIA. 3-3/4" | VC DIA. 1.2" | NOT READILY | REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: JEFFERSON TRAVIS PART No. | REPLACEMENT DATA: MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 32 | Loop Ant. | | 0Ω | | | |
| 33 | Ant. Coil | | 1.5Ω | | | |
| 34A | BC Osc. Coil | 1.5Ω | 2.5Ω | | | Resistance for primary includes BC & SW primaries. |
| 34B | SW Osc. Coil | | 1Ω | | | |
| 35 | Input IF | 24Ω | 24Ω | | 16-3658 | |
| 36 | Intermediate IF | 20.3 | 20Ω | | 16-3659 | |
| 37 | Output IF | 21.3Ω | 21.3 | | 16-3660 | |

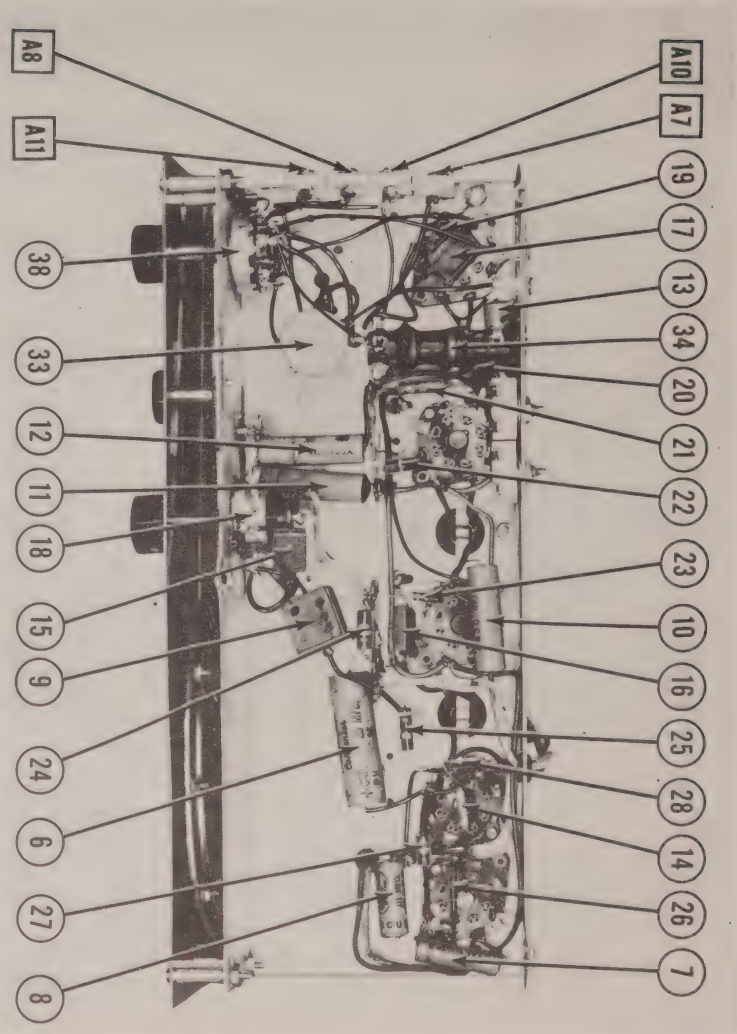
## MISCELLANEOUS

| ITEM No. | PART NAME | JEFFERSON TRAVIS PART No. | NOTES |
|---|---|---|---|
| 38 | Band Switch | | |
| 39 | 2-Gang Var. Cap. | | |



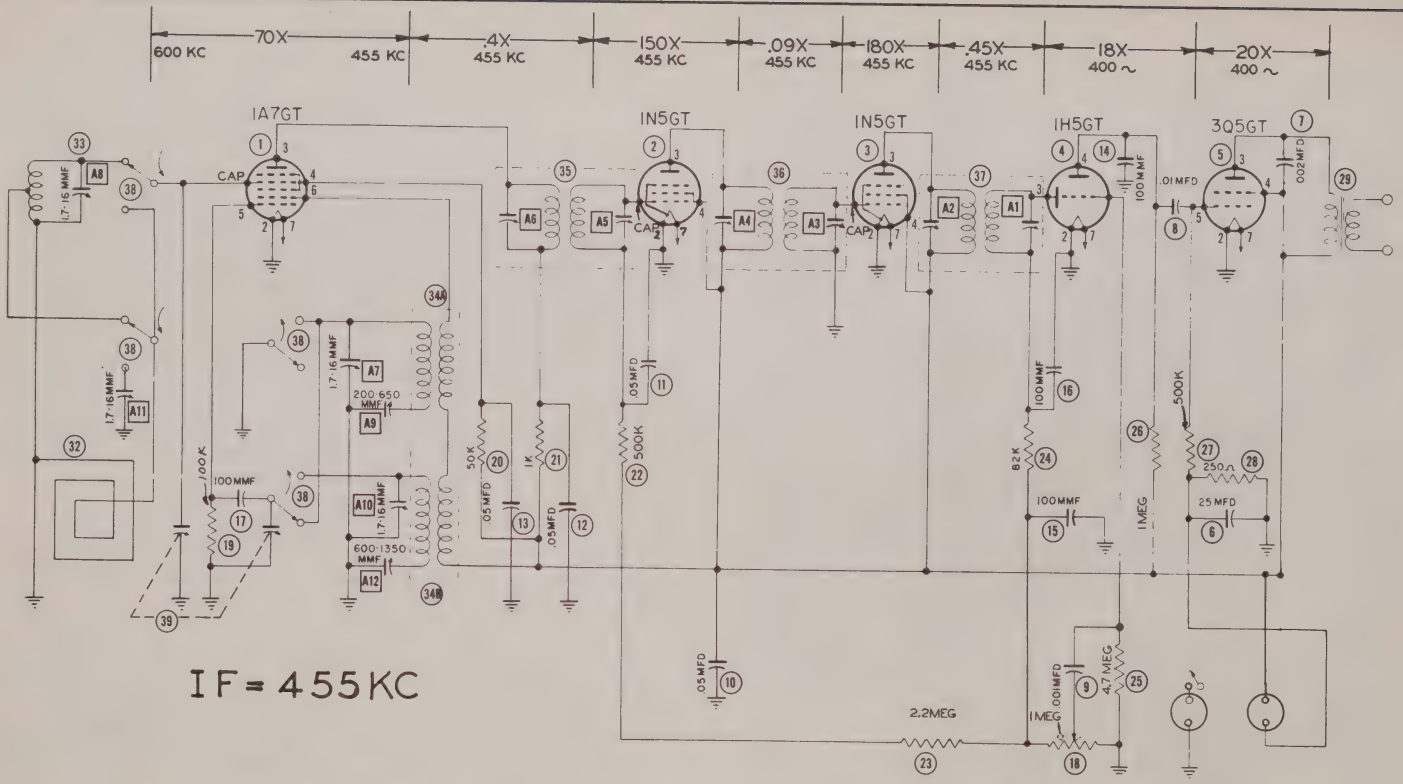

DIAL CORD DRIVE

## CHASSIS—BOTTOM VIEW




JEFFERSON-TRAVIS MODEL AR-23

JEFFERSON-TRAVIS MODEL AR-23




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0V. | 1.35V.DC | 83V.DC | 40V.DC | 0V. | 87 V.DC | 0V. | 0V. | 0V. |
| 2 | 1N5GT | 0V. | 1.35V.DC | 87 V.DC | 87 V.DC | 0V. | 0V. | 0V. | 87 V.DC | 0V. |
| 3 | 1N5GT | 0V. | 1.35V.DC | 87 V.DC | 87 V.DC | 0V. | 0V. | 0V. | 0V. | 0V. |
| 4 | 1H5GT | 0V. | 1.35 V.DC | 53 V.DC | 0V. | -2V.DC | -4V.DC | 0V. | -4V.DC | 0V. |
| 5 | 3Q5GT | 0V. | 1.35V.DC | 82 V.DC | 87 V.DC | -1.4V.DC | 0V. | 1.35V.DC | 0V. | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0Ω | * | INF. | INF. | 920KΩ | INF. | 0Ω | INF. | 1Ω |
| 2 | 1N5GT | 0Ω | * | INF. | INF. | 3.1 MEG. | INF. | 0Ω | INF. | 3.6 MEG. |
| 3 | 1N5GT | 0Ω | * | INF. | INF. | INF. | INF. | 0Ω | 3.1MEG. | 18Ω |
| 4 | 1H5GT | 0Ω | * | INF. | INF. | 975KΩ | 240Ω | 0Ω | 240Ω | 4.5 MEG. |
| 5 | 3Q5GT | INF. | * | INF. | INF. | 480KΩ | INF. | * | 0Ω | |

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

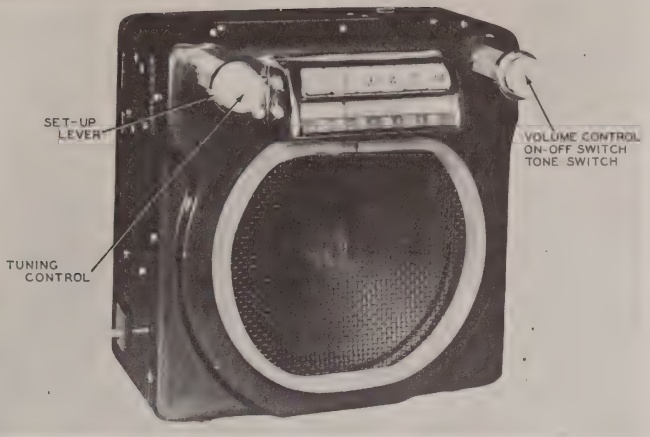
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610—22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.




PUSH BUTTON ADJUSTMENTS

1. Turn on receiver and allow to warm up for at least 5 minutes.
2. Press the manual button marked "M".
3. Turn the tuning knob until the desired station is tuned in.
4. Press the number one button.
5. Turn the set-up lever clockwise as far as it will go and release, allowing it to return.
6. Turn the tuning knob until the previously heard program is heard. (The dial pointer will not indicate the station to which the button is set.) The dial pointer may reach the end of the dial scale before the desired station is received. However, continue turning the tuning knob until the station is received. The dial pointer mechanism will not be affected.
7. Press the "M" button and the number one button is set. Check the setting of the button by tuning in the desired station having the "M" button pushed in and then push the automatic button. Either button should give the same volume and clarity.
8. Repeat the above procedure, steps 2 through 7, for each of the remaining push buttons.

MOTOROLA MODEL BK-6

| | |
|---|---|
| **TRADE NAME** | Motorola, Model BK-6 (1946 Buick) |
| **MANUFACTURER** | Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill. |
| **TYPE SET** | Superheterodyne Dual Unit Automotive Set with Automatic Tuning |
| **TUBES** (EIGHT) | Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT 1st IF Amp., 6SQ7GT Det.-AVC-AF, 6SQ7GT AF Inverter, 2-6V6GT Power Output, 6X5GT or OZ4 Rectifier. |
| **POWER SUPPLY** | 6.3 Volt DC |
| **TUNING RANGE—BROADCAST** | 535-1600KC RATING 8.7 Amps. @ 6.3 V DC |

**ALIGNMENT INSTRUCTIONS**

Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin #8 (grid) of 6SA7. Low side to chassis. | 455KC | High freq.end (Tuning control fully clockwise) | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| 60 MMF. and 21" coaxial lead. Capacitor at gen. end. | Antenna receptacle. | 1600KC | High freq.end Cores are to be projecting 1-1/8" from ends of cans and tuning against stop. | " | A5, A6, A7. | Adjust for maximum output in order given. |
| " | " | 1425KC | Exactly one full turn from high freq.end | " | A8,A9, A10. | Adjust cores for maximum output. Mark manual tuning shaft coupling to indicate full turn |
| " | " | Gen. power off but leave connected | Four more full turns in | " | A11 | Adjust for maximum noise. |
| | | | 1400KC | " | A7 | Install set in car and connect antenna. Adjust for maximum noise. |

**HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana**

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MOTOROLA
MODEL BK-6 (BUICK)

MOTOROLA
MODEL BK-6 (BUICK)

# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: MOTOROLA PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | | 6SK7GT | 6SK7GT | 8N |
| 2 | Osc.-Mod. | | 6SA7GT | 6SA7GT | 8AD |
| 3 | 1st IF | | 6SK7GT | 6SK7GT | 8N |
| 4 | Det.-AVC-AF | | 6SQ7GT | 6SQ7GT | 8Q |
| 5 | Audio Inverter | | 6SQ7GT | 6SQ7GT | 8Q |
| 6 | Power Output | | 6V6GT | 6V6GT | 7AC |
| 7 | Power Output | | 6V6GT | 6V6GT | 7AC |
| 8A | Rectifier | | 0Z4 | 0Z4 | 4R |
| B | Rectifier | | 6X5GT | 6X5GT | 6S |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: MOTOROLA PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 9A | 20 | 400 | 23A75429 | DY-312 | EL-350 | AF44J | UP6BJ38 | FP339 | ▲ Filter |
| B | 20 | 400 | | | | | | | ■ " |
| C | 20 | 25 | | | | PRS50-25 | BR202A | OW344 | " |
| 10 | .006 | 1600 | 8A12840 | XTIMS10-.006 | TR-26 | 1089-006 | MD16D6 | OW344 | Buffer |
| 11 | .5 | 100 | 8A19133 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | Hash Filter |
| 12 | .5 | 100 | 8A17028 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | " " |
| 13 | .003 | 100 | 8K13165 | S-6-.003 | TC-23 | 484-.003 | DT6D3 | TP406 | 6V6 Plate Bypass |
| 14 | .01 | 400 | 8K23690 | S-4-01 | TC-11 | 484-.01 | DT4S1 | TP421 | Audio Coupling |
| 15 | .01 | 400 | 8K23390 | S-4-01 | TC-11 | 484-.01 | DT4S1 | TP421 | " " |
| 16 | .1 | 400 | 8A14791 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Muting Capacitor |
| 17 | .002 | 400 | 8A4736 | S-4-002 | TC-22 | 484-.002 | DT6D2 | TP405 | Tone Compensation |
| 18 | .01 | 400 | 8K23690 | S-4-01 | TC-11 | 484-.01 | DT4S1 | TP421 | Audio Coupling |
| 19 | .01 | 400 | 8K23690 | S-4-01 | TC-11 | 484-.01 | DT4S1 | TP421 | Tone Compensation |
| 20 | .1 | 400 | 8K13166 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Plate Bypass |
| 21 | .05 | 400 | 8A14791 | S-4-05 | TC-15 | 484-.05 | DT4S5 | TP426 | Screen Bypass |
| 22 | .5 | 100 | 8A19133 | S-4-5 | TC-5 | 484-.5 | DT4P5 | TP431 | Solenoid Shunt |
| 23 | .05 | 400 | 8A14791 | S-4-05 | TC-15 | 484-.05 | DT4S5 | TP426 | AVC Filter |
| 24 | .006 | 100 | 8A4529 | S-6-006 | TC-26 | 484-.006 | DT6D6 | TP409 | Ant. Coupling |
| 25 | 250 | 500 | 21R6648 | M0.5-325 | 1FM-325 | 1468-.00025 | 5W5T25 | MC240 | Audio Plate Bypass |
| 26 | 1000 | 500 | 21R6638 | M0.3-21 | 1FM-21 | 1468-.001 | 1W5D1 | MC255 | 6SQ7 Plate Bypass |
| 27 | 50 | 500 | 21R6513 | M0.5-45 | 1FM-45 | 1468-.00005 | 5W5Q5 | MC225 | AVC Coupling |
| 28A | 120 | | 21A70176 | | | | | | Diode Filter |
| B | 120 | | | | | | | | " " |
| 29 | 400 | | 21A71872 | | | | | | Fixed Trimmer Cer. |
| 30 | 50 | | 21R6513 | M0.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Osc. Grid Capacitor |
| 31 | 5 | | 21K70720 | | | | | | RF Coupling Cer. |
| 32 | 90 | | 21A20877 | | | | | | Ant. Filter |
| 74 | 70 | 500 | 21R6650 | MC230 | MS-47 | 1469-00007 | 5W5Q7 | MC230 | Ant. Filter |

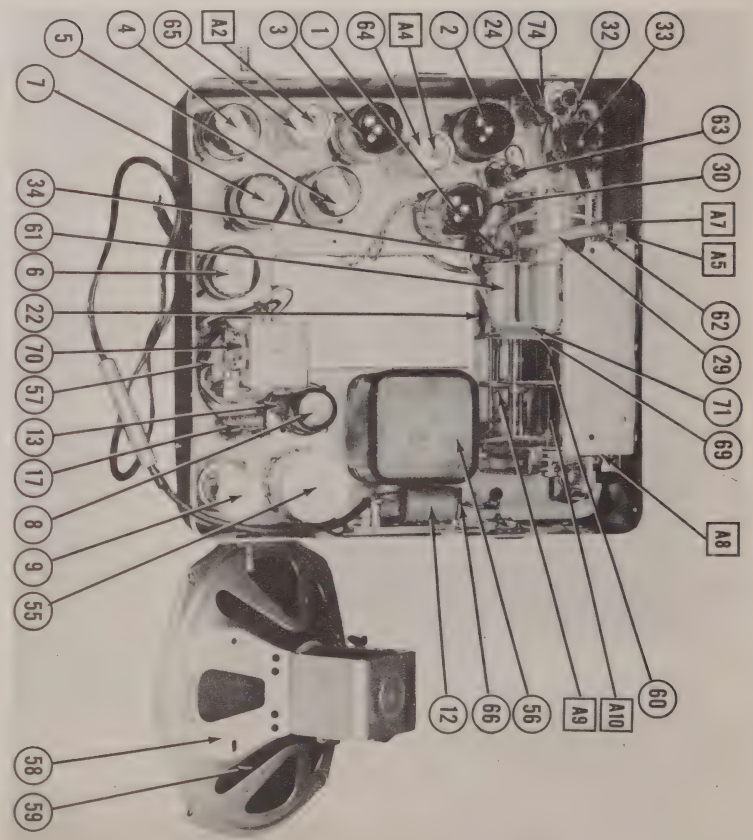
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: MOTOROLA PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 33A | 500K | 1 | 18A71925 | | | | Volume Control & Switch |
| B | 500K | 1 | 18A70172 | | | | Alternate Control & Switch |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: MOTOROLA PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 34 | 470KΩ | ½ | 6R6032 | BTS-470K | Yl.-Vi.-Yl. AVC Network |
| 35 | 100KΩ | ½ | 6R6075 | BTS-100K | Br.-Blk.-Yl. Converter Grid |
| 36 | 47KΩ | ½ | 6R6056 | BTS-47K | Yl.-Vi.-Or. Osc. Grid |
| 37 | 10KΩ | 1 | 6R6106 | BTA-10K | Br.-Bl.-Or. Screen Dropping |
| 38 | 330Ω | 1 | 6R6147 | BTA-330 | Or.-Or.-Br. Plate Filter |
| 39 | 22KΩ | ½ | 6R6028 | BTS-22K | Red-Red-Or. Tone Compensation |
| 40 | 1 Meg. | ½ | 6R6004 | BTS-22K | Br.-Blk.-Grn. AVC Network |
| 41 | 47KΩ | ½ | 6R6056 | BTS-47K | Yl.-Vi.-Or. IF Filter |
| 42 | 2.2 Meg. | ½ | 6R3927 | BTS-2.2 Meg. | Red-Red-Grn. 1st AF Grid |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | MOTOROLA PART No. | IRC PART No. | |
| 43 | 3.3 Meg. | ½ | 6R2118 | BTS-3.3 Meg. | Or.-Or.-Grn. 1st AF Grid |
| 44 | 220KΩ | ½ | 6R6015 | BTS-220K | Red-Red-Yl. 1st AF Plate Load |
| 45 | 220KΩ | ½ | 6R6015 | BTS-220K | Red-Red-Yl. Inverter Plate Load |
| 46 | 470KΩ | ½ | 6R6032 | BTS-470K | Yl.-Vi.-Yl. Inverter Grid |
| 47 | 220KΩ | ½ | 6R6407 | BTS-220K | Red-Red-Yl. Output Grid |
| 48 | 270KΩ | ½ | 6R6414 | BTS-270K | Red-Vi.-Yl. Output Grid |
| 49 | 1 Meg. | ½ | 6R6004 | BTS-1 Meg. | Br.-Blk.-Grn. Diode Load |
| 50 | 150Ω | 1 | 6R6253 | BW-1-150 | br.-Grn.-br. Voltage Divider Bias |
| 51 | 62Ω | ½ | 6R2073 | BW-½-68 | blue-Red-Blk. Voltage Divider Bias |
| 52 | 1000Ω | 1 | 6R6184 | BTA-1000 | Br.-Blk.-Red Filter |
| 53 | 50Ω | 1 | 6R6005 | BW-1-47 | Grn.-Blk.-Blk. Hash Suppression |
| 54 | 50Ω | 1 | 6R6005 | BW-1-47 | Grn.-Blk.-Blk. " " |

## VIBRATOR

| ITEM No. | TYPE | INPUT VOLTS | FREQUENCY | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | MOTOROLA PART No. | MALLORY PART No. | RADIART PART No. | |
| 55 | Interrupter | 6.3 | 115~ | 3333 | 859 | 5342M | |

## TRANSFORMER (VIBRATOR)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | MOTOROLA PART No. | STANCOR PART No. | THORDARSON PART No. | |
| 56 | 5.5V @ 2.6A each section | 280 VAC CT @ .074A | | | 25B70950 | †P-4083 | T14R33† | †Drill new mounting holes |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | MOTOROLA PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 57 | 12500Ω CT | 3.5Ω | 340Ω CT | .3Ω | 25B70819 | A-3850 | T22S47 | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | MOTOROLA PART No. | JENSEN PART No. | | |
| 58A | FIELD RES. 4.1Ω | VC IMP. 3.5Ω | 50C74585 | ST-516 Mod. D8-RS | | |
| B | | | 50C74479 | | | Alternate Speaker |
| 59A | CONE DIA. 7-3/8" | VC DIA. 1" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

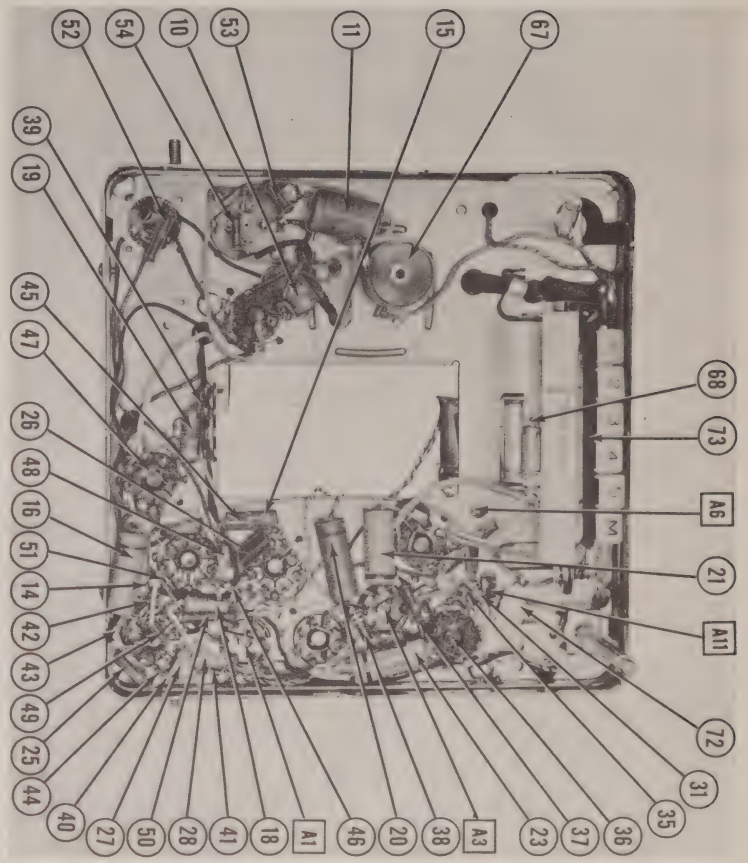
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | MOTOROLA PART No. | MEISSNER PART No. | |
| 60 | Ant. Coil | 12.3Ω | | 1A71881 | | Items 60, 61, & 62 ganged together and slug tuned. |
| 61 | RF Coil | 12.2Ω | | 1A71881 | | |
| 62 | Osc. Coil | 1.8Ω | | 1A71879 | | |
| 63 | Osc. Padder | 2Ω | | 24A70227 | | |
| 64 | Input IF | 16Ω | 14.9Ω | 24B70627 | 16-6666 | |
| 65 | Output IF | 15.5Ω | 16.2Ω | 24B70627 | 16-6657 | |
| 66 | Bat. RF Ch. | 0Ω | | 24K70840 | | |
| 67 | Vib. Rf Ch. | 0Ω | | 24A70199 | | |

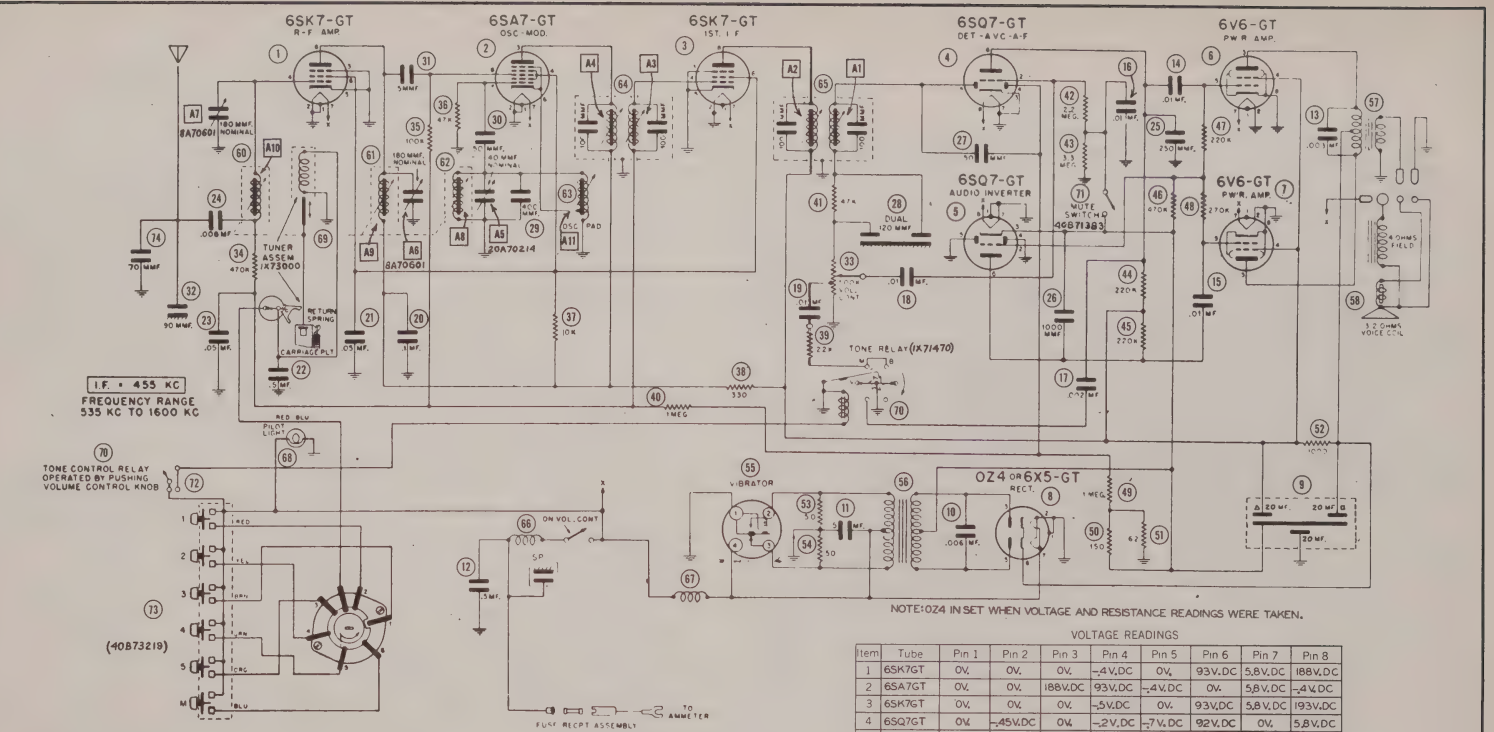
## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | MOTOROLA PART No. | | |
| 68 | Bayonet | 6-8 | 0.25 | Blue | 65X10867 | | Type 44 |

# CHASSIS—BOTTOM VIEW




MOTOROLA MODEL BK-6




NOTE: 0Z4 IN SET WHEN VOLTAGE AND RESISTANCE READINGS WERE TAKEN.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SK7GT | 0V. | 0V. | 0V. | -4V.DC | 0V. | 93V.DC | 5.8V.DC | 188V.DC |
| 2 | 6SA7GT | 0V. | 0V. | 188V.DC | 93V.DC | -4V.DC | 0V. | 5.8V.DC | -4V.DC |
| 3 | 6SK7GT | 0V. | 0V. | 0V. | -5V.DC | 0V. | 93V.DC | 5.8V.DC | 193V.DC |
| 4 | 6SQ7GT | 0V. | -.45V.DC | 0V. | -2V.DC | -7 V.DC | 92V.DC | 0V. | 5.8V.DC |
| 5 | 6SQ7GT | 0V. | -14V.DC | -13.5V.DC | 0V. | 0V. | 73V.DC | 0V. | 5.8V.DC |
| 6 | 6V6GT | -14V.DC | 0V. | 213V.DC | 193V.DC | -11.5V.DC | 0V. | 5.8V.DC | 0V. |
| 7 | 6V6GT | -3.8V.DC | 0V. | 213V.DC | 193V.DC | -11.5V.DC | -14V.DC | 5.8V.DC | 0V. |
| 8 | 0Z4/6X5GT | 0V. | 0V. | 290V.AC | -13V.DC | 290V.AC | 0V. | 5.8V.DC | 217 V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SK7GT | 0Ω | 0Ω | 0Ω | 2.2MEG. | 0Ω | 75KΩ | .2Ω | 65KΩ |
| 2 | 6SA7GT | 0Ω | 0Ω | 65KΩ | 75KΩ | 36KΩ | .5Ω | .2Ω | 1.9MEG. |
| 3 | 6SK7GT | 0Ω | 0Ω | 0Ω | 1.9 MEG. | 0Ω | 75KΩ | .2Ω | 65KΩ |
| 4 | 6SQ7GT | 3 MEG. | 5 MEG. | 0Ω | 400KΩ | 875KΩ | 285KΩ | 0Ω | .2Ω |
| 5 | 6SA7GT | 0Ω | 450KΩ | 200Ω | 0Ω | 0Ω | 285KΩ | 0Ω | .2Ω |
| 6 | 6V6GT | 450KΩ | 0Ω | 65KΩ | 65KΩ | 670KΩ | 0Ω | .2Ω | 0Ω |
| 7 | 6V6GT | 55Ω | 0Ω | 65KΩ | 65KΩ | 680KΩ | 450KΩ | .2Ω | 0Ω |
| 8 | 0Z4/6X5GT | 0Ω | 0Ω | 420Ω | 205Ω | 440Ω | INF. | .2Ω | 65KΩ |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

At the request of the manufacturer stage gain measurements are not included.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

PHILCO MODEL 46-350

| | |
|---|---|
| **TRADE NAME** | Philco Model 46-350 |
| **MANUFACTURER** | Philco Corporation, Tioga & C Sts., Philadelphia, Pa. |
| **TYPE SET** | Three Power Portable Superheterodyne Receiver - Self Contained Loop Antenna |
| **TUBES** (SIX) | Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1U5 Det.-AVC-AF 3Q5 Power Amp., 117Z3 Rectifier. |
| POWER SUPPLY RATING | 105-120 Volts AC-DC or 9 Volt "A" & 90 Volt "B" Battery Pack (Philco Type P-841A) .150 Amp. @ 117 Volts AC-58 MA @ 9.4 Volts DC & 13.7 MA @ 94 Volts DC |
| **TUNING RANGE—BROADCAST** | 540-1600KC |

**ALIGNMENT INSTRUCTIONS**

Align receiver with chassis mounted in the cabinet. To set pointer, turn variable fully closed and set pointer at the index mark at the low-frequency end of the dial. Use battery power for alignment whenever possible. If ac power is used use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep output from the signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Reconnect ext. ant. lead to chassis after alignment is completed.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 200 MMF. | High side to ext. ant. lead. (Disconnect from chassis if connected). Low side to chassis. | 265KC | Low freq. end | Across voice coil | A1,A2, A3,A4. | Preset A4 fully tight. Then adjust in order given including A4. |
| 200 MMF. | " | 1600KC | 1600KC | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | 580KC | Tune for maximum output. | " | A6 | Rock variable and adjust for maximum output. |
| 200 MMF. | " | 1600KC | 1600KC | " | A5 | Adjust for maximum output. |
| 200 MMF. | " | 1500KC | Tune for maximum output. | " | A7 | " " " " |
| 200 MMF. | " | 1500KC | " | " | A8 | " " " " |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 1T4 | 1T4 | 6AR | |
| 2 | Converter | 1R5 | 1R5 | 7AT | |
| 3 | IF Amp. | 1T4 | 1T4 | 6AR | |
| 4 | Det.-AVC-AF | 1U5 | 1U5 | 6BW | |
| 5 | Power Output | 3Q5GT | 3Q5GT | 7AP | |
| 6 | Rectifier | 11723 | 11723 | 4BR | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: PHILCO PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 30 | 150 | 30-2563 | DY-401 | EL-434 | | EZ42215C | FP409 | Filter - Orange |
| B | 10 | 150 | | | | | | | " - Red |
| C | 20 | 150 | | | | | | | " - Brown |
| D | 30 | 25 | | | | | | | Filament Bypass-Yel. |
| 8 | .04 | 400 | 45-3500-2 | S-6-04 | TC-14 | 484-04 | DT4S4 | TP425 | Line Filter |
| 9 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Pwr. Supp. Bypass |
| 10 | .1 | 400 | 61-0113 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Line Isolation |
| 11 | .007 | 400 | 30-4630 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Output Plate Bypass |
| 12 | .004 | 600 | 61-0179 | S-6-004 | TC-24 | 684-004 | DT6D4 | TP407 | Audio Coupling |
| 13 | .004 | 600 | 61-0179 | S-6-004 | TC-24 | 684-004 | DT6D4 | TP407 | " " |
| 14 | .05 | 400 | 61-0122 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Audio Screen Bypass |
| 15 | .05 | 400 | 61-0122 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Screen Bypass |
| 16 | .25 | 100 | 61-0125 | S-4-25 | TC-2 | 484-.25 | DT4P25 | TP430 | Filament Bypass |
| 17 | .1 | 400 | 61-0113 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | " " |
| 18 | .05 | 400 | 61-0122 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 19 | .05 | 400 | 61-0122 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | " " |
| 20 | .1 | 400 | 61-0113 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Filament Bypass |
| 21 | .01 | 400 | 76-2271 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | AVC Filter * |
| 22 | .0015 | 600 | 45-3500-6 | S-6-002 | TC-22 | 684-002 | DT4D2 | TP405 | Ant. Coupling |
| 23 | 100 | 500 | 6010105407 | MO.5-31 | 1FM-31 | 1468-00001 | 5W5T1 | MC235 | Output Grid Bypass |
| 24 | 150 | 500 | 6010155407 | MO.5-315 | 1FM-315 | 1468-00015 | 5W5T15 | MC236 | Fixed Padder |
| 25 | 30 | 500 | 6000305307 | MO.5-43 | MS-43 | 1468-00002 | 5W5Q3 | MC220 | Ant. Coupling |

*Wind same number of turns of wire on replacement as on original.

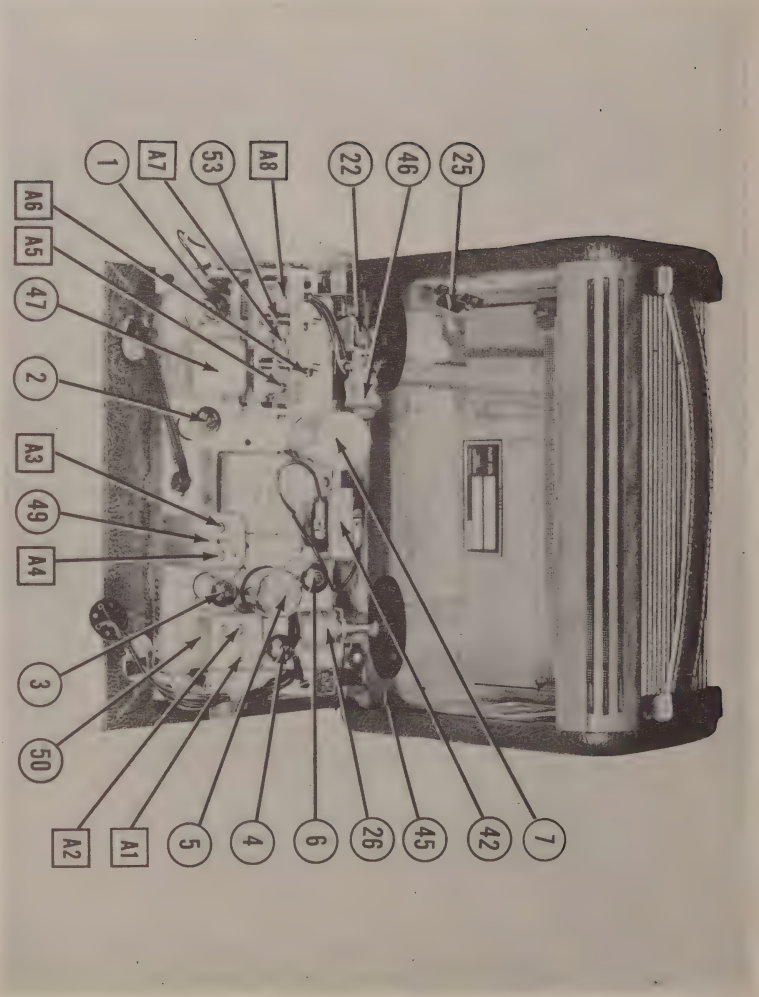
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PHILCO PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 26 | 1 Meg. | 1 | 33-5526 | | | | Volume Control |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: PHILCO PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 27 | 4.7 Meg. | ½ | 66-5473340 | BTS-4.7 Meg. | Yl.-Vi.-Grn. Converter Grid |
| 28 | 4.7 Meg. | ½ | 66-5473340 | BTS-4.7 Meg. | Yl.-Vi.-Grn. RF Grid |
| 29 | 120KΩ | ½ | 66-4123340 | BTS-120K | Br.-Red-Yl. Oscillator Grid |
| 30 | 2.2 Meg. | ½ | 66-5223340 | BTS-2.2 Meg. | Red-Red-Grn. AVC Network |
| 31 | 470Ω | ½ | 66-1473340 | BTS-470 | Yl.-Vi.-Br. Filament String |
| 32 | 270Ω | ½ | | BW-½-220 | Red-Vi.-Br. Filament String |
| 33 | 4.7 Meg. | ½ | 66-5473340 | BTS-4.7 Meg. | Yl.-Vi.-Grn. 1st AF Grid |
| 34 | 3.3 Meg. | ½ | 66-5333340 | BTS-3.3 Meg. | Or.-Or.-Grn. 1st AF Screen Dropping |
| 35 | 1 Meg. | ½ | 66-5103340 | BTS-1 Meg. | Br.-Blk.-Grn. 1st AF Plate Load |
| 36 | 2.2 Meg. | ½ | 66-5223340 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 37 | 680Ω | ½ | 66-1683340 | BTS-680 | Blue-Gray-Br. Filament String |
| 38 | 15KΩ | ½ | 66-3153340 | BTS-15KMeg. | Br.-Grn.-Or. Screen Dropping |
| 39 | 120KΩ | ½ | 66-4123340 | BTS-120K | Br.-Yl.-Yl. Line Isolating |
| 40 | 2200Ω | ½ | 66-2223340 | BTS-2200 | Red-Red-Red Filter |
| 41A | 60Ω | 10 | 33-3431 | | Filament String |
| B | 875Ω | | | | " " |
| C | 875Ω | | | | " " |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | PHILCO | STANCOR | THORDAR'N | | |
| | PRI. | SEC. | PRI. | SEC. | PART No. | PART No. | PART No. | | |
| 42 | 11000Ω | 3.3Ω | 460Ω | .4Ω | 32-8259 | A-3879 | T22S47 | | |

## SPEAKER

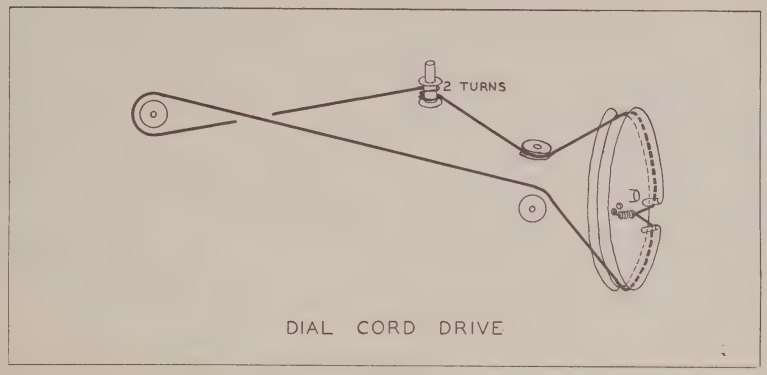
| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | PHILCO PART No. | JENSEN PART No. | | |
| | FIELD | VC IMP. | | | | |
| 43 | PM | 3.3Ω | 3L-159e | | | |
| | CONE DIA. | VC DIA. | | | | |
| 44 | 4"X6"(Oval) | ⅞" | CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER. | | | |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | PHILCO PART No. | MEISSNER PART No. | |
| 45 | Loop Ant. | | 2.5Ω | 76-2430 | | |
| 46 | Ant. Coil | 34Ω | 1Ω | 32-3972 | | |
| 47 | RF Coil | 82Ω | 5Ω | 32-3974 | | |
| 48 | Osc. Coil | 2.5Ω | 3.5Ω | 32-3973 | | |
| 49 | Input IF | 41Ω | 37Ω | 32-3970 | | |
| 50 | Output IF | 42Ω | | 32-3971 | | |
| 51 | RF Choke | 12Ω | | 32-4007 | | |

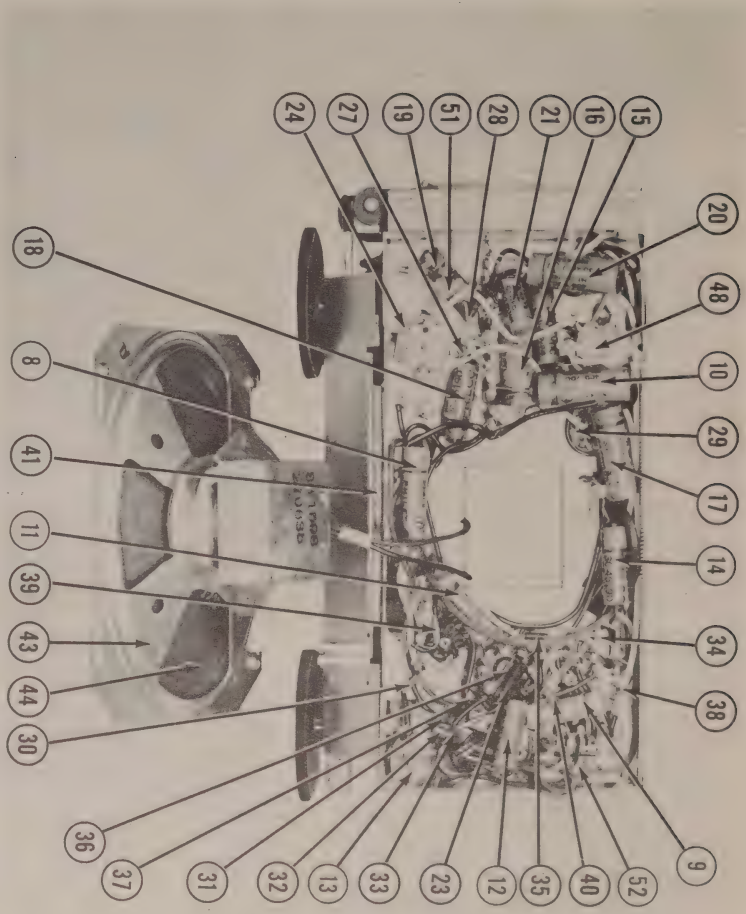
## MISCELLANEOUS

| ITEM No. | PART NAME | PHILCO PART No. | NOTES |
|---|---|---|---|
| 52 | AC-DC Batt.Sw. | 42-1553-1 | |
| 53 | 3 Gang Var. Cap. | 31-2669 | Ant., RF, & Osc. Trimmers Inc. |
| 26 | Trimmer | 31-6410 | Osc. Padder |
| | Cabinet and Loop Assembly | 76-2430 | |
| | Knob | 54-4214 | |
| | Pointer | 76-2470 | |
| | Dial Scale | 27-5891 | |



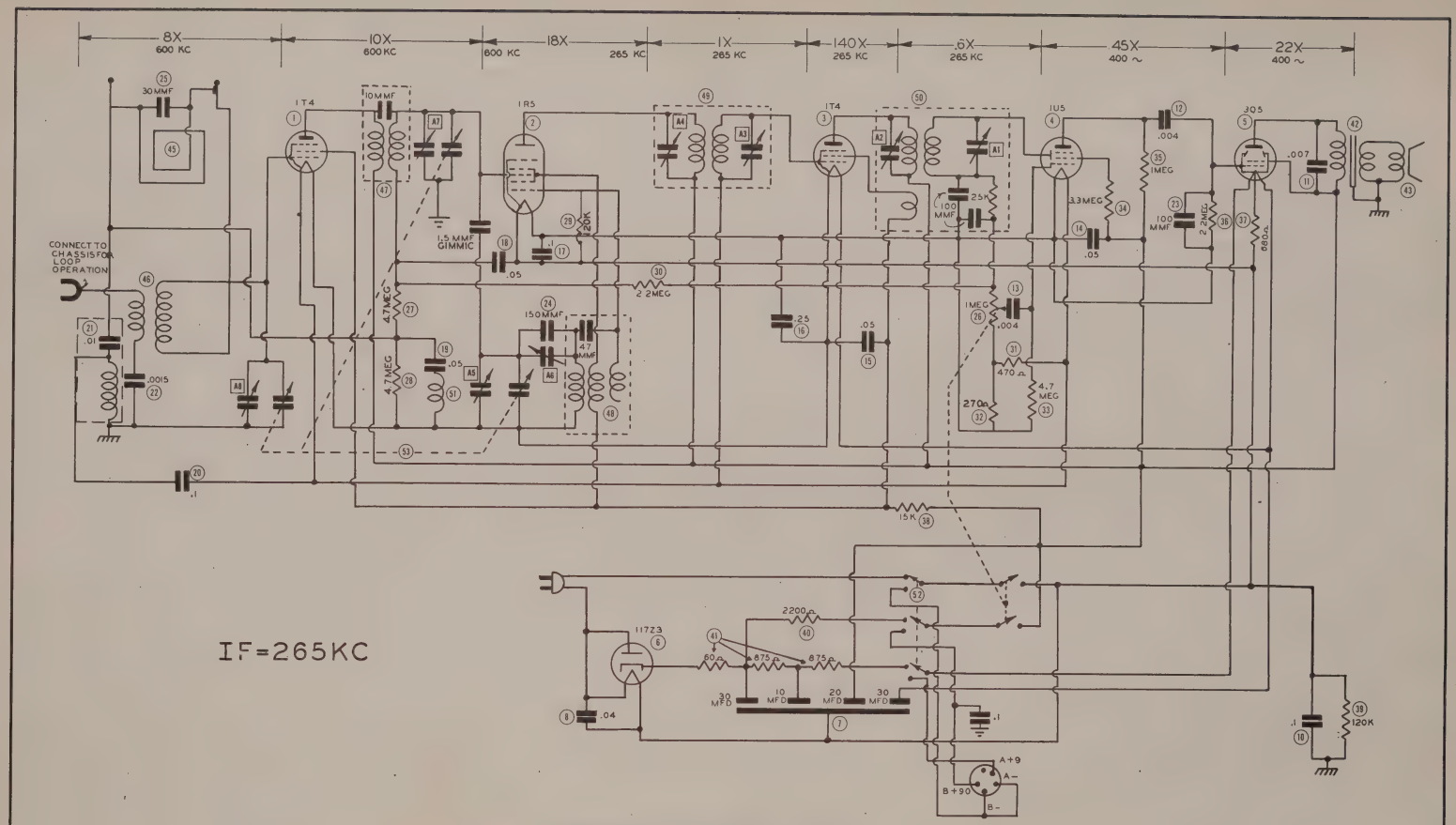

DIAL CORD DRIVE

# CHASSIS—BOTTOM VIEW




PHILCO MODEL 46-350

PHILCO MODEL 46-350




NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1T4 | 2V.DC | 80V.DC | 45V.DC | 0V. | 2V.DC | .2V.DC | 2.9V.DC | |
| 2 | 1R5 | 0V. | 80V.DC | 45V.DC | 0V. | 0V. | .2V.DC | 1V.DC | |
| 3 | 1T4 | 2.9V.DC | 80V.DC | 45V.DC | 5.6V.DC | 2.9V.DC | 2V.DC | 3.8V.DC | |
| 4 | 1U5 | 1V.DC | 12V.DC | 17V.DC | .4V.DC | 0V. | 0V. | 2V.DC | |
| 5 | 3Q5 | 1V.DC | 5.2V.DC | 78V.DC | 80V.DC | .1 V.DC | 102V.DC | 3.8V.DC | 4.4V.DC |
| 6 | 117Z3 | 0V. | 0V. | 117 V.AC | 0V. | 117 V.AC | 107 V.DC | 0V. | |

RESISTANCE READINGS

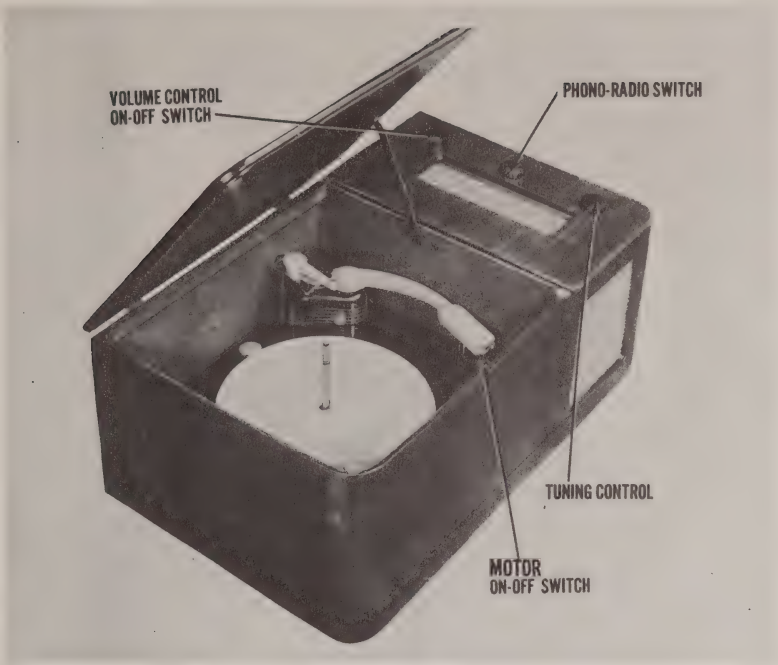
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1T4 | * | 3900Ω | 19KΩ | INF. | * | 2.7MEG. | * | |
| 2 | 1R5 | * | 3900Ω | 19KΩ | 108KΩ | * | 2.3MEG. | * | |
| 3 | 1T4 | * | 3900Ω | 19KΩ | 890KΩ | * | 54Ω | * | |
| 4 | 1U4 | * | 1MEG. | 3.3MEG. | 950KΩ | INF. | 5MEG. | * | |
| 5 | 3Q5 | * | * | 4200Ω | 3900Ω | 2 MEG. | 1640Ω | * | * |
| 6 | 117Z3 | INF. | INF. | 450Ω | 0Ω | 450Ω | 1700Ω | INF. | |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-24

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting out AVC line to pin 1 of the 1U5 Tube.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.




PURITAN MODEL 503

| | |
|---|---|
| TRADE NAME | Puritan, Model 503 |
| SUPPLIER | The Pure Oil Co., 35 Wacker Drive, Chicago, Ill. |
| TYPE SET | AC Operated Combination Phono-Superheterodyne Receiver-Self Contained Loop Antenna |
| TUBES (FIVE) | Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC RATING .240 Amps. @ 117V AC |
| TUNING RANGE—BROADCAST | 540-1600KC |

**ALIGNMENT INSTRUCTIONS**

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD | High side to pin #4 (grid) 12SK7. Low side to B-. | 455KC | Turn rotor full open. | Across voice coil | A1,A2. | Adjust for maximum output. Use isolation transformer if available. If not connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation. |
| " | High side to pin #8 (grid) 12SA7. Low side to B-. | " | " | " | A3,A4. | " |
| " | " | 1620KC | " | " | A5 | " |
| 50 MMFD | High side to ext. ant. clip. Low side to chassis. | 1400KC | Tune in 1400 KC signal. Set pointer at 1400KC | " | A6 | Adjust for maximum output. For this adjustment replace chassis and loop in cabinet. |

PURITAN
MODEL 503

PURITAN
MODEL 503

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | PURITAN PART No. | STANDARD REPLACEMENT | | |
| 1 | Converter | 12SA7 | 12SA7 | 8R | |
| 2 | IF Amp. | 12SK7 | 12SK7 | 8N | |
| 3 | Det.-AVC-AF | 12SQ7 | 12SQ7 | 8Q | |
| 4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | PURITAN PART No. | MALLORY PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | |
| 6A | 50 | 150 | 45A341 | 2N521 | DSB-2X50-150 | TA-530 | PRS150-40-40 | EZ5515 | Filter - Red |
| B | 50 | 150 | | | | | | | " - Blue |
| 7 | .1 | 400 | D67104 | TP428 | S-4-1 | TC-1 | 484-.1 | DT4P1 | Line Filter |
| 8 | .2 | 200 | D67204 | TP429 | S-4-2 | TC-2 | 484-.2 | DT4P2 | Line Isolating |
| 9 | .01 | 200 | B66103 | TP421 | S-4-01 | TC-11 | 484-.01 | DT4S1 | 50L6 Plate Bypass |
| 10 | .01 | 200 | B66103 | TP421 | S-4-01 | TC-11 | 484-.01 | DT4S1 | Audio Coupling |
| 11 | .01 | 200 | B66103 | TP421 | S-4-01 | TC-11 | 484-.01 | DT4S1 | " " |
| 12 | .08 | 200 | B66803 | TP452 | S-4-1 | TC-1 | 484-.075 | DT4P1 | Phono Coupling |
| 13 | .05 | 200 | B66503 | TP428 | S-4-05 | TC-15 | 484-.05 | DT4S5 | AVC Filter |
| 14 | .001 | 400 | D67102 | TP404 | S-4-001 | TC-21 | 484-.001 | DT5D1 | Ant. Coupling |
| 15 | 220 | 500 | 47X468 | MC237 | MO.5-32 | 1FM-32 | 1468-.0002 | 5W5T2 | Audio Plate Bypass |
| 16A | 50 | 500 | 47X112 | MC225 | MO.5-45 | 1FM-45 | 1468-.0005 | 5W5T5 | Diode Filter |
| B | 50 | 500 | | MC225 | MO.5-45 | 1FM-45 | 1468-.0005 | 5W5T5 | " " |
| 17 | 47 | 500 | 47X446 | MC225 | MO.5-45 | 1FM-45 | 1468-.0005 | 5W5T5 | Osc. Grid Capacitor |

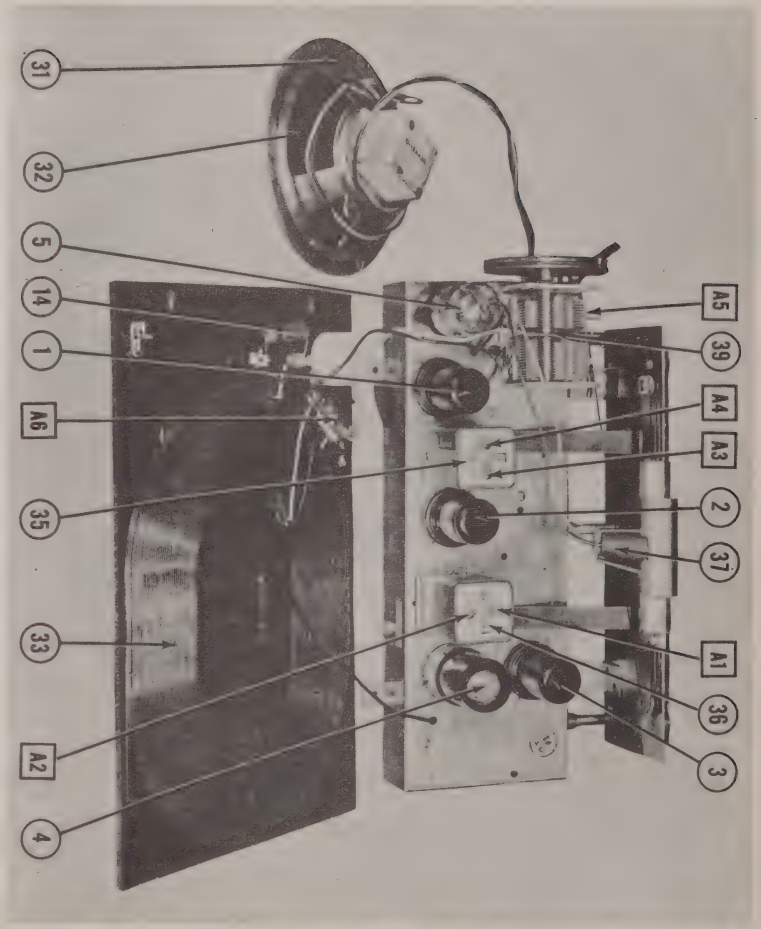
## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | PURITAN PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 18A | 500KΩ | 1 | 36X352 | MK401 | D13-133 | AM-60-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KSS-3 | Attach to 18A per instructions |
| C | Switch | | " " | M26 | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | PURITAN PART No. | IRC PART No. | |
| 19 | 39KΩ | ½ | B64393 | BTS-39K | Or.-White-Or. Osc. Grid |
| 20 | 2.2 Meg. | ½ | B65225 | BTS-2.2 Meg | Red-Red-Grn. AVC Network |
| 21 | 47KΩ | ½ | B65473 | BTS-47K | Yl.-Vi.-Or. IF Filter |
| 22 | 6.8 Meg. | ½ | B65685 | BTS-6.8 Meg | Blue-Gray-Grn. 1st AF Grid |
| 23 | 470KΩ | ½ | B64474 | BTS-470K | Yl.-Vi.-Yl. 1st AF Plate Load |
| 24 | 470KΩ | ½ | B65474 | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 25 | 150Ω | ½ | B63151 | BW-½-150 | Br.-Grn.-Br. Output Cathode |
| 26 | 220KΩ | ½ | B65224 | BTS-220K | Red-Red-Yl. Line Isolating |
| 27 | 27Ω | ½ | B64270 | BW-½-27 | Red-Vi.-Blk. Rectifier Ballast |
| 28 | 1500Ω | 1 | C65152 | BTA-1500 | Br.-Grn.-Red Filter |
| 29 | 1 Meg. | ½ | B65105 | BTS-1 Meg. | Br.-Blk.-Grn. Series Phono |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | PURITAN PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 30 | 2700Ω | 3.4Ω | 200Ω | .62Ω | 51X123 | A-3873 | T-22S45 | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | PURITAN PART No. | JENSEN PART No. | | |
| | FIELD | VC IMP. | | ST-105 | | |
| 31 | FM | 3.4Ω | 12A438 | Mod. P5-X | | |
| | CONE DIA. | VC DIA. | | | | |
| 32 | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | PURITAN PART No. | MEISSNER PART No. | |
| 33 | Loop Ant. | .1Ω | 2.2Ω | 26A413 | | |
| 34 | Osc. Coil | .5Ω | 6Ω | 9A1805 | 14-1040 | |
| 35 | Input IF | 21.3Ω | 21.8Ω | 9A1808 | 16-6653 | |
| 36 | Output IF | 23Ω | 19Ω | 9A1809 | 16-6660 | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | PURITAN PART No. | | |
| 37 | Bayonet | 6-8 | .15 | Brown | | | Type 47 |

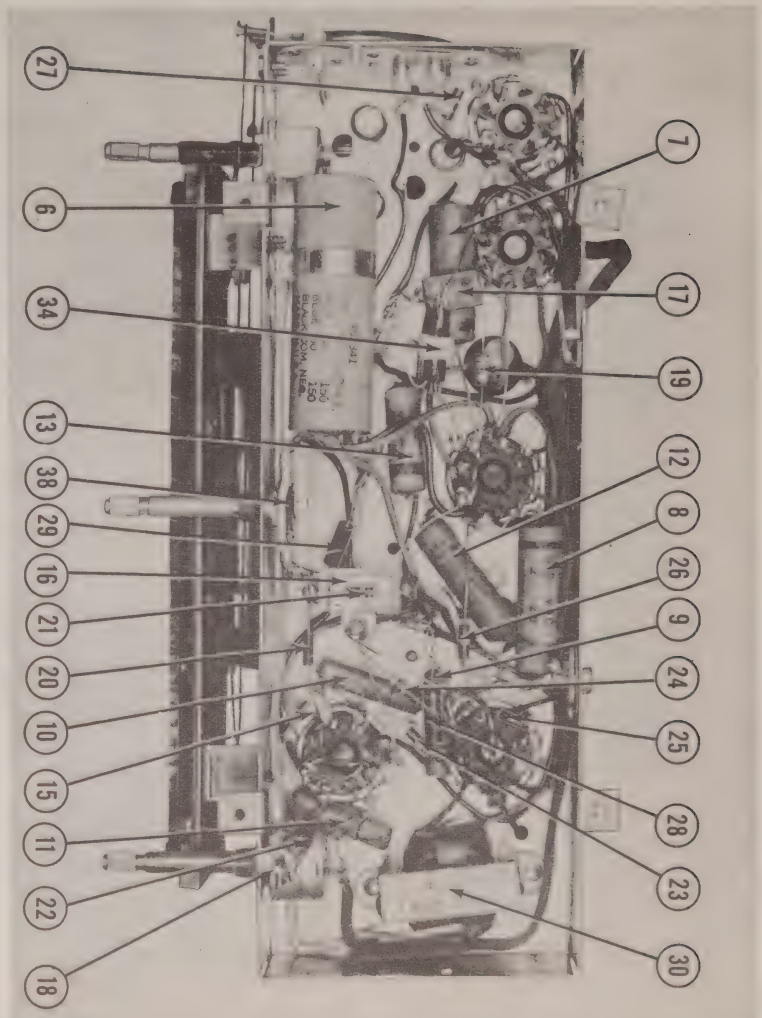
## MISCELLANEOUS

| ITEM No. | PART NAME | PURITAN PART No. | NOTES |
|---|---|---|---|
| 38 | Switch | 2A358 | Radio-Phono |
| 39 | Tuning Cap | 26A402 | 2 Gang Variable Cap. |
| A6 | Trimmer Cap. | 17A123 | Ant. Adj. 1-12 MMF. |
| | Knob | 10A297 | Volume Control, Tuning |
| | Knob | 10A584 | Radio-Phono |
| | Crystal | Astatic L-75 | or Equivalent |
| | Dial | 58X810 | |
| | Pointer | 15X150 | Dial |

DISASSEMBLY INSTRUCTIONS

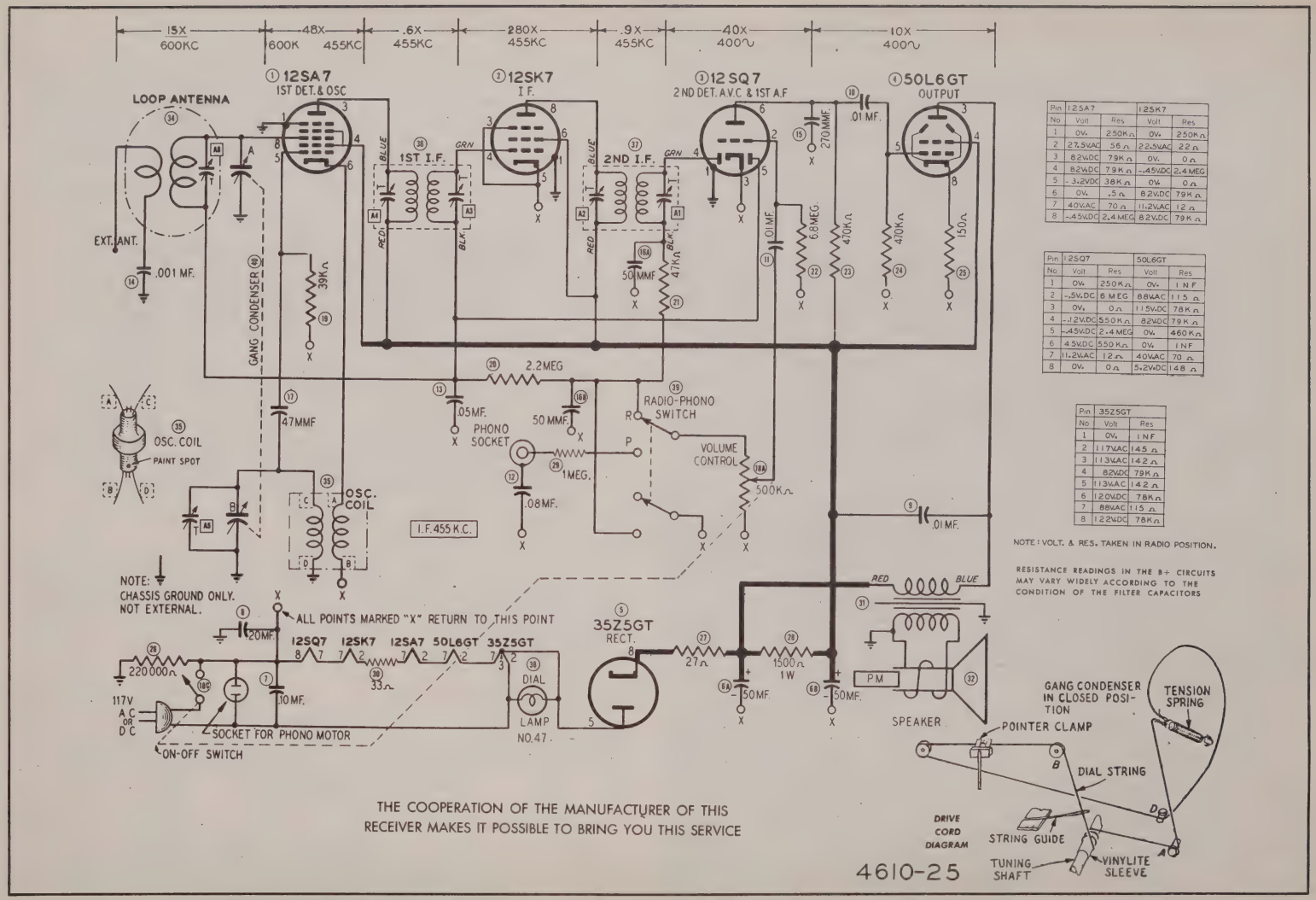
1. Remove the following push-on type control knobs: Volume, Phono-Radio and Tuning.
2. Disconnect the phono-motor and pickup plugs.
3. Disconnect the speaker plug.
4. Remove two wood screws holding loop antenna to cabinet.
5. Remove chassis board lock-bar holding chassis to cabinet.
6. Slide chassis and loop antenna out together.
7. Remove four hex screws and washers holding chassis to chassis board. Remove chassis.
8. Remove four nuts, lock-washers and spacers from speaker bolts. Remove speaker.

## CHASSIS—BOTTOM VIEW





PURITAN MODEL 503




| Pin No | 12SA7 Volt | 12SA7 Res | 12SK7 Volt | 12SK7 Res |
|---|---|---|---|---|
| 1 | 0V. | 250K Ω | 0V. | 250K Ω |
| 2 | 27.5VAC | 56 Ω | 22.5VAC | 22 Ω |
| 3 | 82VDC | 79K Ω | 0V. | 0 Ω |
| 4 | 82VDC | 79K Ω | -.45VDC | 2.4MEG |
| 5 | -3.2VDC | 38K Ω | 0V. | 0 Ω |
| 6 | 0V. | .5 Ω | 82VDC | 79K Ω |
| 7 | 40VAC | 70 Ω | 11.2VAC | 12 Ω |
| 8 | -.45VDC | 2.4MEG | 82VDC | 79K Ω |

| Pin No. | 12SQ7 Volt | 12SQ7 Res | 50L6GT Volt | 50L6GT Res |
|---|---|---|---|---|
| 1 | 0V. | 250K Ω | 0V. | 1 NF |
| 2 | -.5V.DC | 6 MEG | 88VAC | 115 Ω |
| 3 | 0V. | 0 Ω | 115VDC | 78K Ω |
| 4 | -1.2V.DC | 550K Ω | 82VDC | 79K Ω |
| 5 | -.45V.DC | 2.4 MEG | 0V. | 460K Ω |
| 6 | 4.5V.DC | 550K Ω | 0V. | 1 NF |
| 7 | 11.2VAC | 12 Ω | 40VAC | 70 Ω |
| 8 | 0V. | 0 Ω | 5.2VDC | 148 Ω |

| Pin No | 35Z5GT Volt | 35Z5GT Res |
|---|---|---|
| 1 | 0V. | 1 NF |
| 2 | 117VAC | 145 Ω |
| 3 | 113VAC | 142 Ω |
| 4 | 82VDC | 79K Ω |
| 5 | 113VAC | 142 Ω |
| 6 | 120VDC | 78K Ω |
| 7 | 88VAC | 115 Ω |
| 8 | 122VDC | 78K Ω |

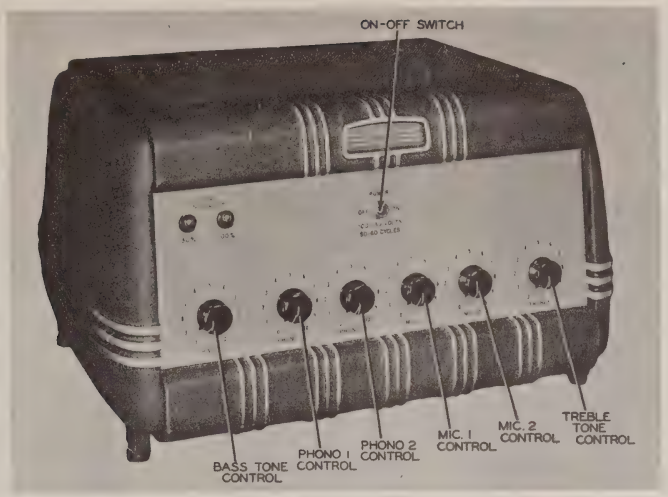
NOTE: VOLT. & RES. TAKEN IN RADIO POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




RCA MODEL MI-13159

| | |
|---|---|
| **TRADE NAME** | RCA Model MI-13159 |
| **MANUFACTURER** | RCA Victor Div., Radio Corp. of America, Camden, N.J. |
| **TYPE SET** | 30 Watt 4 Channel AC Operated Amplifier. |
| **TUBES** (TEN) | Types (2) 7B4 Mike Amp., 7F7 Audio Amp., 6J5 Audio Amp., (4) 6V6GT Power Output, (2) 6X5GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC RATING .950 Amp. @ 117V AC |

NOTE: ALL VOLUME CONTROLS AND TREBLE FULL ON.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7B4 | * | 145V.DC | 0V. | 0V. | 242V.DC | 0V. | 1.25V.DC | * |
| 2 | 7B4 | * | 132V.DC | 0V. | 0V. | 0V. | 0V. | 1.5V.DC | * |
| 3 | 7F7 | * | 1.75V.DC | 143V.DC | 0V. | 0V. | 168V.DC | 1.95V.DC | * |
| 4 | 6J5 | 0V. | * | 285V.DC | 0V. | 0V. | 0V. | * | 12V.DC |
| 5 | 6V6GT | 0V. | * | 415V.DC | 330V.DC | 0V. | 0V. | * | 23V.DC |
| 6 | 6V6GT | 0V. | * | 415V.DC | 330V.DC | 0V. | 0V. | * | 23V.DC |
| 7 | 6V6GT | 0V. | * | 415V.DC | 330V.DC | 0V. | 0V. | * | 23V.DC |
| 8 | 6V6GT | 0V. | * | 415V.DC | 330V.DC | 0V. | 330V.DC | * | 23V.DC |
| 9 | 6X5GT | 0V. | 420V.DC | 370V.AC | 0V. | 370V.AC | 0V. | 420V.DC | 420V.DC |
| 10 | 6X5GT | 0V. | 420V.DC | 370V.AC | 0V. | 370V.AC | 0V. | 420V.DC | 420V.DC |

* 5.8V AC MEASURED ACROSS FILAMENT.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7B4 | ∞ | 330KΩ | INF. | INF. | 80KΩ | 940KΩ | 2.8KΩ | ∞ |
| 2 | 7B4 | ∞ | 330KΩ | INF. | INF. | INF. | 860KΩ | 3KΩ | ∞ |
| 3 | 7F7 | ∞ | 2.5KΩ | 230KΩ | 205KΩ | 1.7 MEG. | 205KΩ | 2.5KΩ | ∞ |
| 4 | 6J5 | 0Ω | ∞ | 55KΩ | INF. | 600KΩ | INF. | ∞ | 2.4KΩ |
| 5 | 6V6GT | INF. | ∞ | 30KΩ | 30KΩ | 390Ω | INF. | ∞ | 150Ω |
| 6 | 6V6GT | INF. | ∞ | 30KΩ | 30KΩ | 350Ω | INF. | ∞ | 150Ω |
| 7 | 6V6GT | INF. | ∞ | 30KΩ | 30KΩ | 390Ω | INF. | ∞ | 150Ω |
| 8 | 6V6GT | INF. | ∞ | 30KΩ | 30KΩ | 350Ω | 30KΩ | ∞ | 150Ω |
| 9 | 6X5GT | INF. | 30KΩ | 85Ω | INF. | 85Ω | 0Ω | 30KΩ | 30KΩ |
| 10 | 6X5GT | INF. | 30KΩ | 77Ω | INF. | 77Ω | INF. | 30KΩ | 30KΩ |

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: RCA PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Mic. Amp. | 7B4 | 7B4 | 5AC | |
| 2 | Mic. Amp. | 7B4 | 7B4 | 5AC | |
| 3 | Audio Amp. | 7F7 | 7B7 | 8AC | |
| 4 | Audio Amp. | 6J5 | 6J5 | 6Q | |
| 5 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 6 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 7 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 8 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 9 | Rectifier | 6X5GT | 6X5GT | 6S | |
| 10 | Rectifier | 6X5GT | 6X5GT | 6S | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: RCA PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 40 | 450 | | D-40-450 | PLS-40 | GL450-40 | KR540 | KS224 | Filter |
| 12A | 10 | 450 | | DY-10-450/ 25-50 | EL-220 | AF-2J4A* | UP1045 | FP234 | ■ Filter ▲ Cath. Bypass |
| B | 20 | 50 | | | | | BR205 | | |
| 13A | 10 | 450 | | DY-3x10-450 | EL-310 | AF222J | UP6CJ18 | FP389 | ■ Filter |
| B | 10 | 450 | | | | | | | " |
| C | 10 | 450 | | | | | | | ▲ " |
| 14A | 20 | 25 | | DY-2x20-150 | EL-221 | AF44D | UP2215 | FP217 | ■ Cath. Bypass |
| B | 20 | 25 | | | | | | | ▲ " " |
| 15A | 20 | 25 | | M-2x20-150 | TA-220 | PRSA150-20-20 | BR202A | 2N509 | " " |
| B | 20 | 25 | | | | | | | " " |
| 16 | .002 | 1600 | | S-16-002 | TR-22 | 1684-002 | MD16D2 | OW331 | 6K6 Plate Bypass |
| 17 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Audio Coupling |
| 18 | .1 | 400 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP426 | " " |
| 19 | .01 | 400 | | S-4-01 | TC-11 | 484-.01 | DT4S1 | TP421 | " " |
| 20 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | " " |
| 21 | 170 | 500 | | MO.5-315 | 1FM-315 | 1468-00015 | SW5T15 | MC236 | Tone Compensation |
| 22 | 50 | 500 | | MO.5-45 | 1FM-45 | 1468-00005 | SW5Q5 | MC225 | " " |
| 23 | 250 | 500 | | MO.5-325 | 1FM-325 | 1468-00025 | SW5T25 | MC240 | " " |

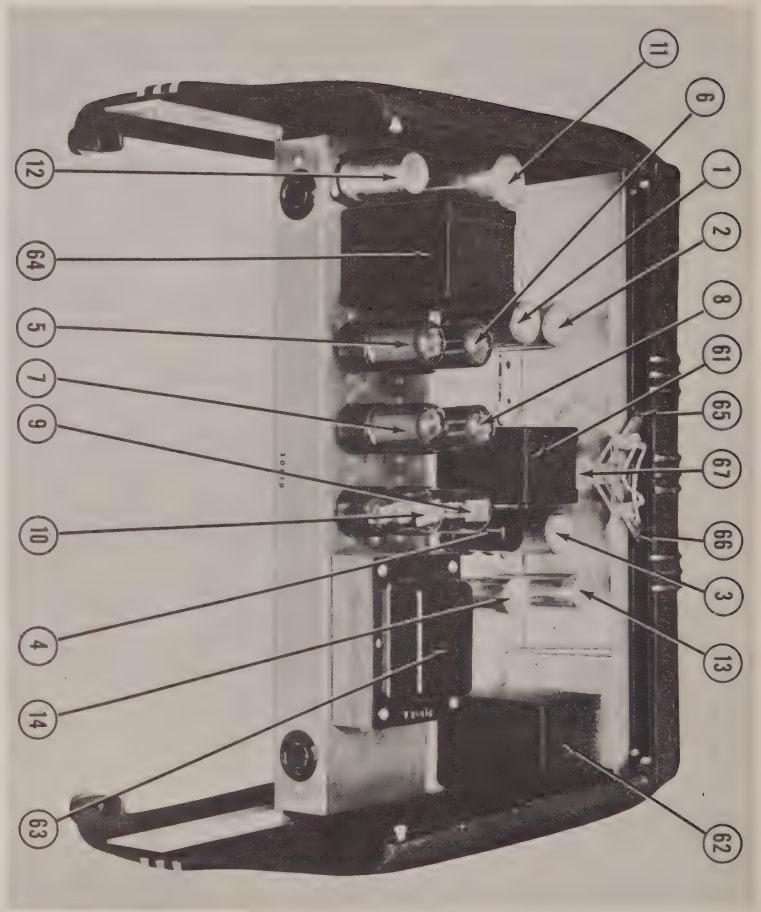
*Do not use one 10 MFD. section.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: RCA PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 24A | 500KΩ | 1 | | MR48 | D13-133 | M-60-Z | Phono Control #1 |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 24A per instructions |
| 25A | 500KΩ | 1 | | MR48 | D13-133 | M-60-Z | Phono Control #2 |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 25A per instructions |
| 26A | 500KΩ | 1 | | MR48 | D13-133 | M-60-Z | Mike Control #1 |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 26A per instructions |
| 27A | 500KΩ | 1 | | MR48 | D13-133 | M-60-Z | Mike Control #2 |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 27A per instructions |
| 28A | 4 Meg. | 1 | | | D11-141 | | Treble Control - See Note |
| B | Shaft | | | | A | | Attach to 28A per instructions |
| 29A | 4 Meg. | 1 | | | | | Bass Control |
| B | Shaft | | | | | | Attach to 29A per instructions |

Note-Connect left hand terminal of replacement control to ground and right hand terminal to 6J5 Grid (Control viewed from shaft side, terminals down.)

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | RCA PART No. | IRC PART No. | |
| 30 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 1st Mike Amplifier Grid |
| 31 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 2nd Mike Amplifier Grid |
| 32 | 3300Ω | ½ | | BTS-3300 | Or.-Or.-Red 1st Mike Amplifier Cathode |
| 33 | 3300Ω | ½ | | BTS-3300 | Or.-Or.-Red 2nd Mike Amplifier Cathode |
| 34 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. 1st Mike Amplifier Plate Load |
| 35 | 270KΩ | ½ | | BTS-270K | Red-Vi.-Yl. 2nd " " " " |
| 36 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. Mixer Grid |
| 37 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. Mixer Grid |
| 38 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. Mixer Grid |
| 39 | 560KΩ | ½ | | BTS-560K | Grn.-Blue-Yl. Mixer Grid |
| 40 | 2700Ω | ½ | | BTS-2700 | Red-Yl.-Red Mixer Cathode |
| 41 | 150KΩ | ½ | | BTS-150K | Br.-Grn.-Yl. Mixer Plate Load |
| 42 | 27KΩ | ½ | | BTS-27K | Red-Vi.-Or. Mixer Decoupling |
| 43 | 3.3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Or.-Grn. Audio Coupling |
| 44 | 220KΩ | ½ | | BTS-220K | Red-Red-Yl. 1st AF Grid |
| 45 | 2700Ω | ½ | | BTS-2700 | Red-Vi.-Red 1st AF Cathode |
| 46 | 150KΩ | ½ | | BTS-150K | Br.-Grn.-Yl. 1st AF Plate Load |
| 47 | 1.8 Meg. | ½ | | BTS-1.8 Meg. | Br.-Gray-Grn. Tone Compensation |
| 48 | 3.3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Or.-Grn. Tone Compensation |
| 49 | 3.3 Meg. | ½ | | BTS-3.3 Meg. | Or.-Or.-Grn. Tone Compensation |
| 50 | 1.8 Meg. | ½ | | BTS-1.8 Meg. | Br.-Gray-Grn. Audio Coupling |
| 51 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. Tone Compensation |
| 52 | 1 Meg. | ½ | | BTS-1 Meg. | Br.-Blk.-Grn. 2nd AF Grid |
| 53 | 2700Ω | ½ | | BTS-2700 | Red-Vi.-Red 2nd AF Cathode |
| 54 | 50KΩ | ½ | | BTS-47K | Grn.-Blk.-Or. Driver Transformer Shunt |
| 55 | 50KΩ | ½ | | BTS-47K | Grn.-Blk.-Or. " " " |
| 56 | 10KΩ | 1 | | BTA-10K | Br.-Blk.-Or. Filter |
| 57 | 10KΩ | 1 | | BTA-10K | Br.-Blk.-Or. Voltage Dropping<br>Output Cathode - See Note 1 |
| 58 | 171Ω | 5 | | ABA-200 | |
| 59 | 47KΩ | 2 | | BT-2-47K | Yl.-Vi.-Or. Bleeder |
| 60 | 7500Ω | 10 | | AB-7500 | Screen Dropping |

Note 1 - Set slider at 170Ω from one end.

## TRANSFORMER (DRIVER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | RCA PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 61 | Matched to 6J5 | Matched to P-P grids | 1900Ω | 800Ω CT | | A-4405† | T20A17† | | †Drill new mounting holes. |

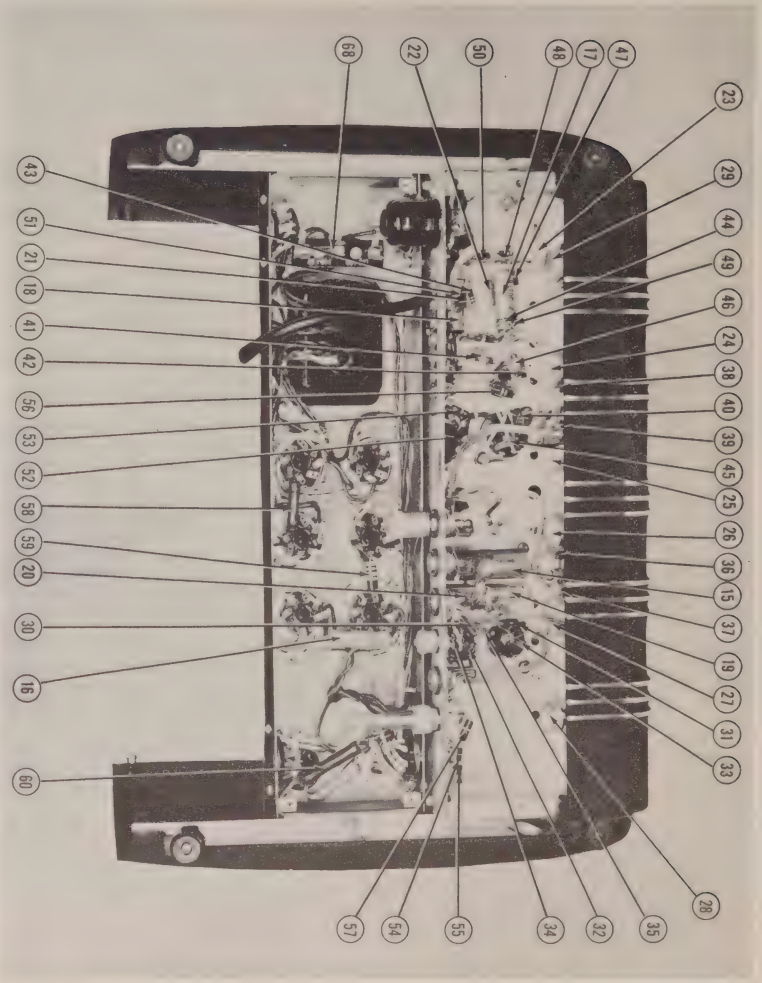
## TRANSFORMER (IMPEDANACE MATCHING)

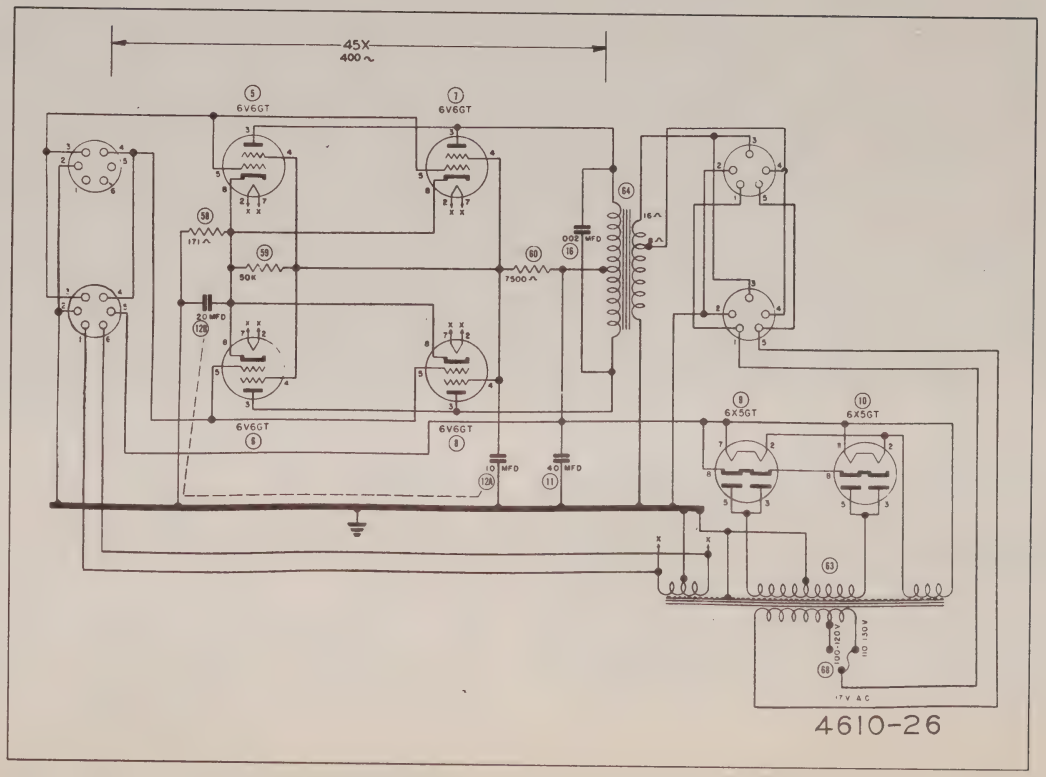
| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | IMPEDANCE | DC RES. | RCA PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| 62 | 600Ω<br>250Ω<br>16Ω<br>8Ω<br>5.3Ω<br>4Ω | 1.6Ω<br>1Ω<br>.45Ω<br>.4Ω<br>.35Ω<br>.3Ω | | A-3656 | | | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | RCA PART No. | STANCOR PART No. | THORDARSON PART No. | |
| 63 | 117VAC @ .95A | 740VCT @ .130A | 5.7 VAC @ 1.2A | 6.7VAC @ 3.1A | P-1662 | | | |

# CHASSIS—BOTTOM VIEW




45X
400 ~
6V6GT
6V6GT
6V6GT
6V6GT
6X5GT
6X5GT
50K
7500 Ω
171 Ω
16 Ω
.002 MFD
20 MFD
10 MFD
40 MFD
110-130 V
17 V A.C.

4610-26

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | RCA PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 64 | 4400Ω CT | 8Ω 16Ω | 130Ω CT | .4Ω .5Ω | | A-3830† | T22S74† | | †Drill new mounting holes. |

## DIAL LIGHT

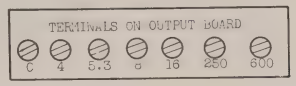
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | RCA PART No. | | |
| 65 | Bayonet | 6-8 | 0.15 | White | | | Type 51 |
| 66 | " | 6-8 | 0.15 | " | | | " " |

### AUDIO OUTPUT

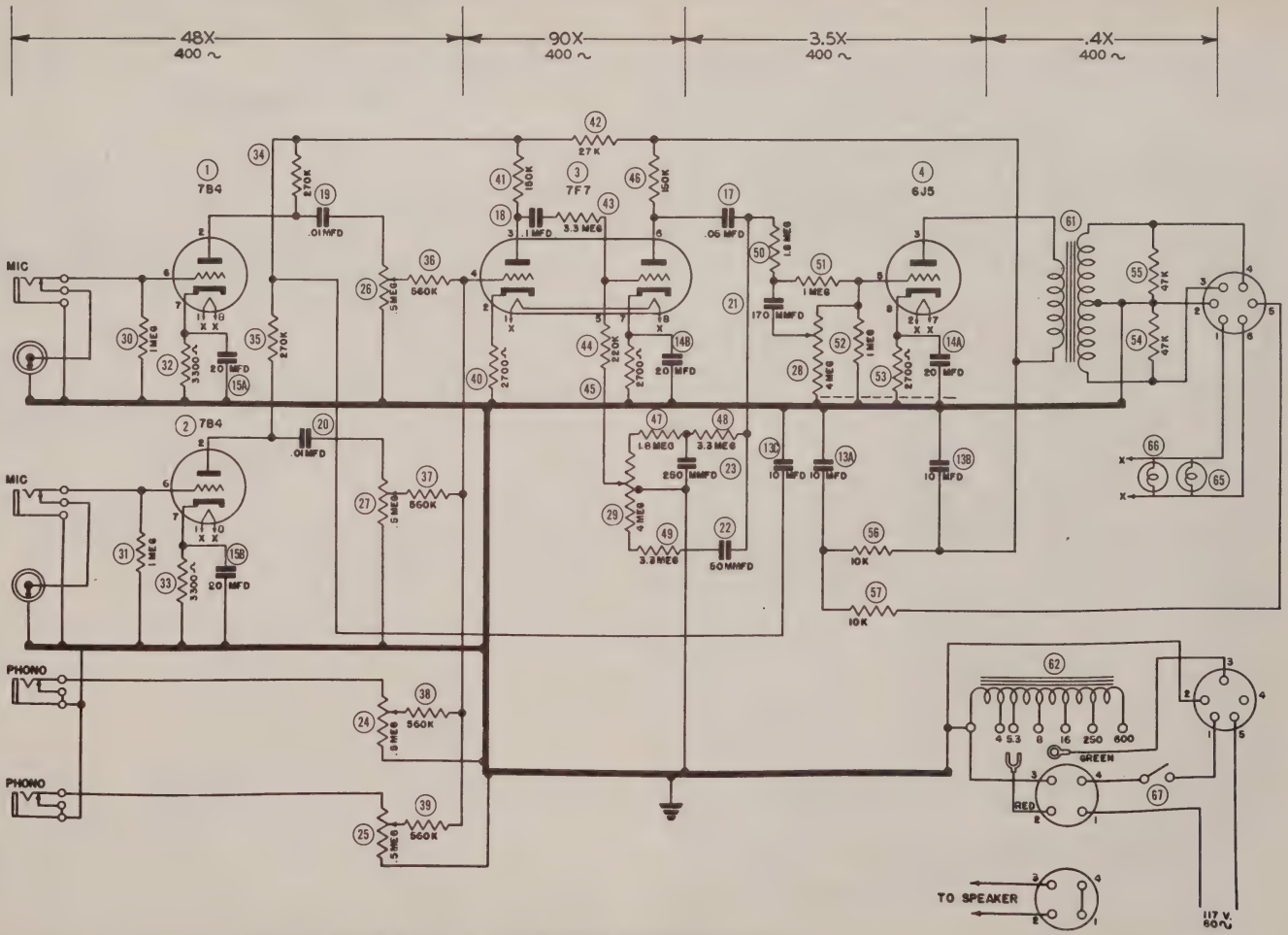
Duplicate outputs are provided. A four-prong plug is provided for portable work. This plug has an AC jumper which turns off the AC when the speaker is removed. The plug must always be connected in order to have the amplifier light up. When using the output plug, connect the red wire to the desired impedance on the output board. For permanent wiring, connect speakers directly to the terminals on the output board. Connect one wire to "C" (common ground) and the other wire to desired speaker impedance. When connections are made directly to terminal board, the red wire need not be used. In all cases, (portable and permanent) the green jumper must be connected to 16, if one power amplifier is used, and to 8 if two power amplifiers are used.

The direct output impedance of the 30-watt amplifier is 8 and 16 ohms. Direct connections can be made by connecting to the five-prong male plug on the rear of the power amplifier, as shown on the schematic. The common on this five-prong male is #2 pin. The low impedance is #4 pin, and the high impedance is #3 pin. When two 30 watts are plugged together for a total of 60 watts, pin #4 is 4 ohms and pin #3 is 8 ohms.

When there is a large power output, and a number of speakers running on low impedance lines, it will be best to run separate speaker lines from each pair of power amplifiers to their group of speakers. This will prevent the line impedance from becoming too low, and will add duplicate systems; thus, in case one line fails, the other will operate. Long wires are subject to damage.




| TERMINAL BOARD TAPS | 16 8 | 16 5.3 | 4 C | 5.3 C | 8 C | 16 C | 250 16 | 250 8 | 250 5.3 | 250 4 | 250 C | 600 16 | 600 8 | 600 4 | 600 C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OUTPUT IMPEDANCE | 1.4 | 2.7 | 4 | 5.3 | 8 | 16 | 125 | 167 | 180 | 200 | 250 | 415 | 460 | 500 | 600 |

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4610-26

RECORDIO
MODELS 6A10, 6A20

RECORDIO MODEL 6A10

| | |
|---|---|
| TRADE NAME | Recordio Models 6A10, 6A20 (Chassis 6A) |
| MANUFACTURER | Wilcox-Gay Corporation, 604 Seminary St., Charlotte, Michigan |
| TYPE SET | Two-Channel Amplifier,,Recorder & Reproducer |
| TUBES(SIX) | Types, 6J7GT Mic. Input, 6J5GT Phono. Input, 6SQ7GT 2nd Audio, 6V6GT Power Output, 6E5 Level Indicator, 5Y3GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC RATING .420 Amps. @ 117 Volts AC |

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN NO. 4 (PUBLIC ADDRESS) POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6J7GT | 0V. | 0V. | 72V.DC | 28V.DC | 0V. | 192V.DC | 3.9V.AC | 0V. | -1.6V.DC |
| 2 | 6J5GT | 0V. | 6.4V.AC | 67V.DC | 171V.DC | 0V. | 0V. | 0V. | 3V.DC | |
| 3 | 6SQ7GT | 0V. | -.4V.DC | 1.8V.DC | 0V. | 0V. | 138V.DC | 0V. | 6.4V.AC | |
| 4 | 6V6GT | 0V. | 6.4V.AC | 218V.DC | 243V.DC | 0V. | 0V. | 0V. | 15V.DC | |
| 6 | 5Y3GT | 0V. | 342V.DC | 0V. | 310V.AC | 0V. | 310V.AC | 0V. | 342V.DC | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6J7GT | 0Ω | 0Ω | 460KΩ | 1.7MEG. | 0Ω | 155KΩ | 2Ω | 0Ω | 10 MEG. |
| 2 | 6J5GT | 0Ω | 2Ω | 500KΩ | 210K | 93KΩ | 690KΩ | 0Ω | 6KΩ | |
| 3 | 6SQ7GT | 0Ω | 450KΩ | 4KΩ | 780KΩ | 780KΩ | 332KΩ | 0Ω | 2Ω | |
| 4 | 6V6GT | 0Ω | 2Ω | 110KΩ | 110KΩ | 430KΩ | INF. | 0Ω | 325Ω | |
| 6 | 5Y3GT | 0Ω | 110KΩ | INF. | 240Ω | INF. | 250Ω | INF. | 110KΩ | |

**RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS**

1 - DC Voltage measurements are 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: RECORDIO PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Mic. Input | | 6J7GT | 7K | |
| 2 | Phono. Input | | 6J5GT | 6Q | |
| 3 | 2nd Audio | | 6SQ7GT | 7L | |
| 4 | Power Output | | 6V6GT | 7.C | |
| 5 | Level Indicator | | 6E5 | 6R | |
| 6 | Rectifier | | 5Y3GT | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: RECORDIO PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 12 | 450 | | DY-4x10-450 | EL-341† | AF444J | UP7DJ51† | FP390 | Filter - Red Dot |
| B | 12 | 450 | | | | | | | " - " " |
| C | 12 | 450 | | M-12-450 | | | | | " - " " |
| 8A | 30 | 150 | | DSb403020-150 | EL-340 | AF888D | UP7DJ19† | FP4091 | Cath. Bypass - Red Dot |
| B | 30 | 150 | | | | | | | " " " " |
| C | 30 | 150 | | | | | | | " " " " |
| 9 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Audio Coupling |
| 10 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Tone Compensation |
| 11 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 12 | .1 | 400 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | 6J7 Screen Bypass |
| 13 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 14 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | " " |
| 15 | .1 | 400 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | " " |
| 16 | .1 | 400 | | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | 6E5 Grid Bypass |
| 17 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Vol. Indicator Coup. |
| 18 | 150 | 500 | | MO.5-315 | 1FM-315 | 1468-00015 | 5W5T15 | MC236 | " " " |
| 19 | 1000 | 500 | | MO.3-21 | 1FM-21 | 1467-001 | 1W5D1 | MC255 | Tone Compensation |
| 20 | 1000 | 500 | | MO.3-21 | 1FM-21 | 1467-001 | 1W5D1 | MC255 | " " |
| 21 | 2700 | 500 | | MW.5-225 | | | | MC460 | " " |
| 22 | 220 | 500 | | MO.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | MC237 | Phono Coupling |

†Do not use bypass section.

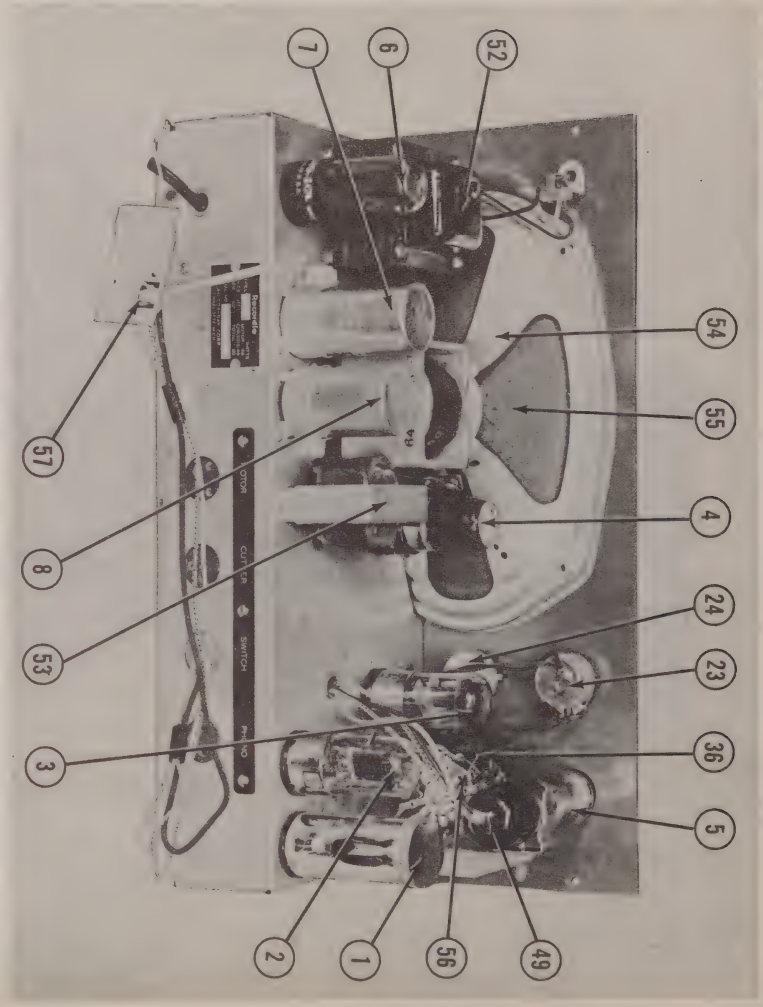
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: RECORDIO PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 23A | 500KΩ | 1 | | MR46 | D13-133 | M-3 -2 | Volume Control |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 23A per instructions |
| C | Switch | | | M26 | 41 | SW-A | " " " " " |
| 24A | 250KΩ | 1 | | | | | Tone Control |
| B | Shaft | | | | | | Attach to 24A per instructions |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: RECORDIO PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 25 | 10 Meg. | 1/2 | | BTS-10 Meg. | Br.-Blk.-Blue Mike Amplifier Grid |
| 26 | 1.5 Meg. | 1/2 | | BTS-1.5 Meg. | Br.-Grn.-Grn. Mike Amplifier Screen Dropping |
| 27 | 220KΩ | 1/2 | | BTS-220K | Red-Red-Yl. Mike Amplifier Plate Load |
| 28 | 4.7 Meg. | 1/2 | | BTS-4.7 Meg. | Yl.-Vi.-Grn. Phono Shunt |
| 29 | 3.3 Meg. | 1/2 | | BTS-3.3 Meg. | Or.-Or.-Grn. Series Phono-See Note 1 |
| 30 | 100KΩ | 1/2 | | BTS-100K | Br.-Blk.-Yl. Phono Amplifier Grid-See Note 2 |
| 31 | 68ΩΩ | 1/2 | | BTS-68Ω | Blue-Gray-Red Phono Amplifier Cathode |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | RECORDIO PART No. | IRC PART No. | |
| 32 | 220KΩ | 1/2 | | BTS-220K | Red-Red-Yl. Phono Amplifier Plate Load |
| 33 | 56KΩ | 1/2 | | BTS-56K | Grn.-Blue-Or. Phono Amplifier Plate Load |
| 34 | 220KΩ | 1/2 | | BTS-220K | Red-Red-Yl. Phono Amp. Parallel Plate Load-See Note 3 |
| 35 | 47KΩ | 1/2 | | BTS-47K | Yl.-Vi.-Or. Series Radio Input |
| 36 | 22KΩ | 1/2 | | BTS-22K | Red-Red-Or. Line Input Load |
| 37 | 3900Ω | 1/2 | | BTS-3900 | Or.-White-Red 2nd AF Cathode |
| 38 | 47KΩ | 1/2 | | BTS-47K | Yl.-Vi.-Or. Voltage Dropping |
| 39 | 22KΩ | 1/2 | | BTS-22K | Red-Red-Or. 2nd AF Plate Load |
| 40 | 220KΩ | 1/2 | | BTS-220K | Red-Red-Yl. Tone Compensation |
| 41 | 470KΩ | 1/2 | | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 42 | 330Ω | 2 | | BT-2-330 | Or.-Or.-Br. Output Cathode |
| 43 | 100KΩ | 1/2 | | BTS-100K | Br.-Blk.-Yl. Tone Compensation |
| 44 | 100KΩ | 1/2 | | BTS-100K | Br.-Blk.-Yl. " " |
| 45 | 3.5Ω | 1/2 | | | Wire Coil Output Transformer Shunt |
| 46 | 3.3 Meg. | 1/2 | | BTS-3.3 Meg. | Or.-Or.-Grn. Tuning Eye Network |
| 47 | 820KΩ | 1/2 | | BTS-820K | Gray-Red-Yl. Tuning Eye Diode Load |
| 48 | 3.3 Meg. | 1/2 | | BTS-3.3 Meg. | Or.-Or.-Grn. Tuning Eye Grid |
| 49 | 1 Meg. | 1/2 | | BTS-1 Meg. | Br.-Blk.-Grn. Tuning Eye Plate Dropping |
| 50 | 10Ω | 1 | | BT-1-10 | Br.-Blk.-Blk. Mike Amplifier Filament |
| 51 | 680KΩ | 1/2 | | BTS-680K | Blue-Gray-Yl. Series Phono-See Note 3 |

Note 1 - Some models use a 2.2 Meg. Resistor in this application.
Note 2 - " " " " 150KΩ " " " "
Note 3 - Not used in all models.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | RECORDIO PART No. | STANCOR PART No. | THORDASON PART No. | |
| 52 | 117VAC @ .420A | 620VCT @ .044A | 5.2VAC @ 1.9A | 6.5VAC @ 1.65A | 80-2159-2 | P-6119 | T-22R01 | |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | RECORDIO PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 53 | 6300Ω | 3.4Ω & Crystal Cutter | 700Ω | .8Ω & 3700Ω | 81-2093 | A-3854* | | | *Drill one new mounting hole |

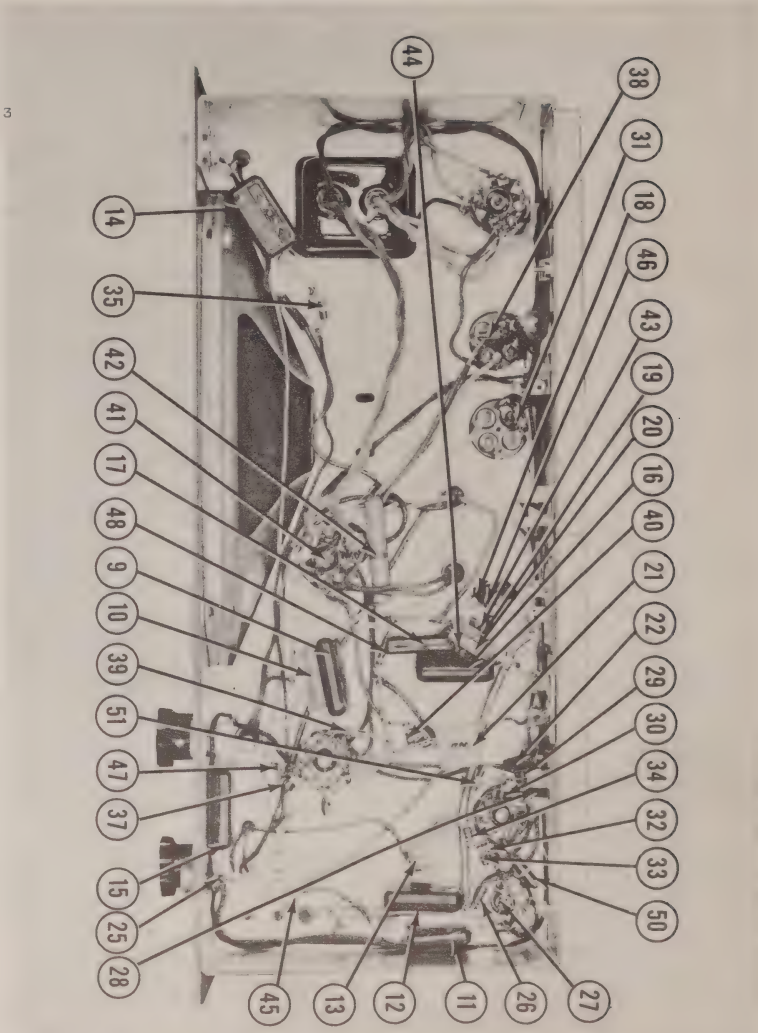
## SPEAKER

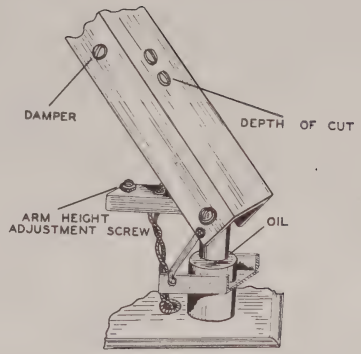
| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | RECORDIO PART No. | JENSEN PART No. | | |
| | FIELD RES. | VC IMP. | | | | |
| 54 | 2000Ω | 3.4Ω | 64-2068-1 | | | |
| | CONE DIA. | VC DIA. | | | | |
| 55 | 6"x9"(Oval) | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | RECORDIO PART No. | NOTES |
|---|---|---|---|
| 56 | Function Switch | | |
| 57 | Freq.Comp.Switch | | |
| 58 | Phono Motor Sw. | | |

## CHASSIS—BOTTOM VIEW






CUTTING ARM ADJUSTMENTS

RECORDING MECHANISM ADJUSTMENTS

All adjustments for the recording mechanism have been properly set by the manufacturer and no attempt should be made to reset them. In case the adjustments have been tampered with or damaged, the cutting arm assembly adjustments are outlined in the following paragraphs.

DEPTH OF CUT

When the machine is cutting correctly, the depth of the groove will be such that the groove width is about the same as the width of the "land" or uncut record material between grooves. This condition may be observed by the use of a strong magnifying glass.

1. In adjusting the groove depth, it is well to make a trial cut of a dozen or more silent grooves (Volume control at minimum), using a new cutting needle. Making this trial cut into the record surface without modulation results in a straight groove of constant width, and also constant "land" width between grooves, whereas, modulation of the grooves causes them to assume a "wavy" shape, making it somewhat difficult to determine the correct groove depth.

   A NEW RECORDIOPOINT CUTTING NEEDLE, OR ONE KNOWN TO BE IN PERFECT CONDITION SHOULD BE USED IN MAKING DEPTH OF GROOVE ADJUSTMENTS, AS TURNING THE ADJUSTING SCREW WILL HAVE LITTLE OR NO EFFECT UPON THE GROOVE DEPTH, IF THE NEEDLE IS DULL.

2. Before making any change in the adjustment provided for regulating the depth of cut, the height of the recording arm of the record surface (arm lowered to recording position) should be observed. The distance between the lower edge of the nose of the arm and the record surface should be 1/4 inch. As the arm height has a definite bearing upon the uniformity of the groove cut into the record, this is very important, and the 1/4 inch measurement should be made with an accurately calibrated steel scale. Due to the possibility of the recording arm having been handled somewhat roughly in raising and lowering the arm, the arm height may be found to be incorrect, and an adjustment of the ARM HEIGHT ADJUSTMENT SCREW should be made so that the lower edge of the front end of the arm is EXACTLY 1/4"inch. To make this adjustment, raise the arm to its vertical position, and loosen the lock nut which holds the adjusting screw in position.

3. The depth of cut adjusting screw is located to the rear on the top of the recording arm. Turning the screw to the right (clockwise) increases the depth of cut, and turning the screw to the left (counter-clockwise) decreases the depth of cut. One turn of the adjusting screw makes a noticeable difference in the depth of the groove, therefore, the adjustments should be made in quarter or half turns, rather than in complete turns either way.

CUTTING HEAD DAMPER ADJUSTMENT

An adjustment is provided for the cutting head damper on the side of the cutting arm. This is initially set at the factory and should not require an immediate readjustment.

TOO TIGHT AN ADJUSTMENT MAY CAUSE "WOWS" TO BE PRODUCED IN THE RECORDING, WHILE TOO LOOSE AN ADJUSTMENT MAY PRODUCE A SLIGHT "FLUTTER" IN THE RECORDING, BOTH OF WHICH APPEAR TO BE MORE GREATLY PRONOUNCED IN THE REPRODUCTION OF LONG OR SUSTAINED RECORDED MUSICAL TONES OF PAINO OR VIOLIN.

1. To determine if the proper adjustment is being maintained, raise the recording arm to a near vertical position so that the needle retaining screw is midway in the slot in the front end of the arm, and observe that when the needle screw is moved to either end of the slot and released, it will return to the midway position and stop.

2. If the damper adjustment is too loose, the needle screw will move back and forth a few times before coming to rest midway in the slot, when released from one end of the slot. In this case the adjusting screw should be turned to the LEFT (counter-clockwise) until the tendency for the screw to continue moving back and forth has been eliminated.

3. If the adjustment is too tight, the needle screw will return to the midway position in the slot, or only part way, with a slow movement. In this case, the adjusting screw should be turned to the RIGHT (clockwise) until the correct adjustment is reached.

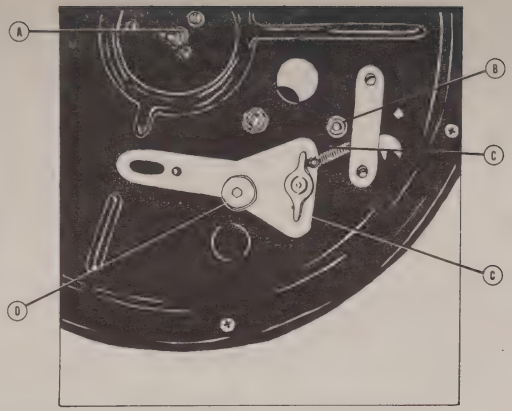
CUTTING HEAD LEADS

1. Observe that the leads connecting to the cutting head are properly placed within the arm so as not to interfere with the cutting head balance spring. Also, the wires should not be permitted to droop (arm horizontal) so that they will rub on the turntable.

2. The connecting wires from the cutting head should not be allowed to double up between the arm and arm platform, but should feed freely through the hole in the platform as the arm is lowered. Otherwise, the doubled up wires may prevent the arm from coming to rest on the head of the height adjustment screw.

PLAYBACK NEEDLE WEIGHT AND ADJUSTMENT

The weight of the playback needle on the record should be between 1.2 and 1.3 ounces. The screw located at the rear of the playback arm provides a means to regulate the needle weight. Turning this screw to the right decreases the weight and to the left increases the weight. A postal scale, hooked to the front edge of the playback arm can be used to check the needle weight. This adjustment has been made at the factory. Readjustment will be necessary only in case of damage.




OILING POINTS

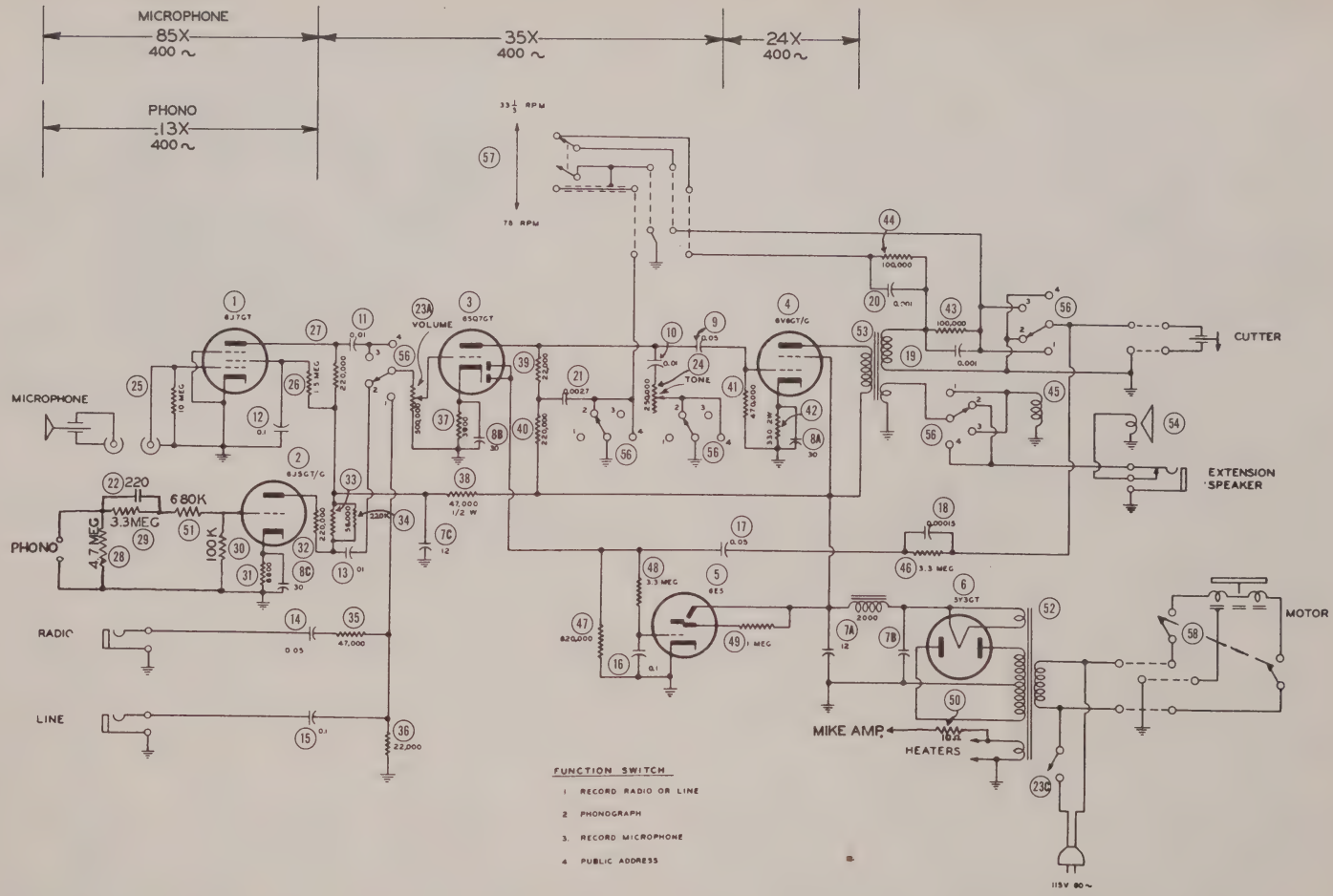
DISASSEMBLY INSTRUCTIONS

1. Remove twelve Phillips head screws from turntable board. Remove turntable from cabinet.
2. Remove two machine screws holding dual speed control switch and shift lever to turntable.
3. Remove three Phillips head screws holding chassis to bottom of cabinet.
4. Remove six Phillips head screws and washers from front panel.
5. Disconnect phono-motor plug from chassis.
6. Disconnect phono cutter plug from chassis.
7. Disconnect phono-pickup plug from chassis.
8. Remove chassis from cabinet.

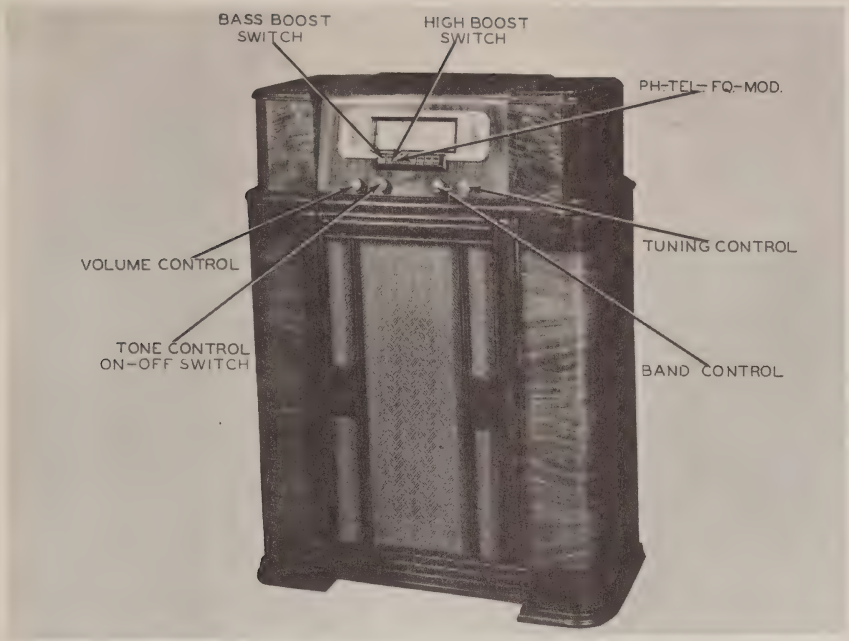
OILING

When the RECORDIO leaves the factory, the equipment is properly lubricated and requires no immediate attention. Frequent oiling of the mechanism is not required, although the use of a small amount of oil judiciously applied about once a year, in accorded with the following directions, will suffice to maintain the equipment in good order.

1. Remove turntable retaining clip.
2. Place the dual-speed shift lever in the "FAST" position and remove the turntable by applying upward pressure to the rim of the table, at the same time lightly tapping the turntable center post with a small tool.
3. Move the dual-speed shift lever to "SLOW" and lift the dual drive wheel assembly from its mounting.
4. Lubricate the oiling positions as indicated in the illustration as follows:
   NOTE: Use only two or three drops of electric motor oil at each position.
   (a) Turntable shaft bearing.
   (b) Upper motor bearing.
   (c) Between drive wheel arm and bed plate, drive wheel mounting washer, lower drive wheel mounting stud.
   (d) Between washer and bed plate.
5. Remove all record shavings that may have gotten under the turntable, also making sure that the drive wheel assembly is free from shavings or other particles likely to impede its smooth operation.
6. Carefully apply one or two drops of oil to each drive wheel bearing, so that the oil will not run out on to the rubber rims of the wheels.
7. Replace idler wheel assembly.
8. Move dual-speed shift lever to the extreme "SLOW" position and replace turntable on the center post. Lower the turntable carefully, without dropping, and rotate the table by hand so that the rubber rim of the lower drive wheel seats properly against the inside surface of the turntable rim.
9. The lower motor bearing may be lubricated by saturing the felt wick which surrounds the lower end of the motor shaft.




THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4610-27




SILVERTONE MODEL 6093

| | |
|---|---|
| **TRADE NAME** | Silvertone Models 6092 (Ch. 101.672-1B), 6093 (Ch. 101.672-1A) |
| **MANUFACTURER** | Sears, Roebuck Co., 925 S. Homan St., Chicago, Ill. |
| **TYPE SET** | AC Operated 2 Band Superheterodyne Receiver with Self Contained Loop Antenna and Pushbutton Tuning. |
| **TUBES** (EIGHT) | Type, 7E6 Osc. & Bias Control, 7H7 Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6SQ7GT Phase Inverter, 2-6K6GT/G Power Output, 5Y3G Rectifier. |
| **POWER SUPPLY** | 105-125 Volts AC RATING .630 Amps. @ 117V AC |
| **TUNING RANGE—BROADCAST** | 535-1750KC **SHORT WAVE** 5.5-18.3MC |

**ALIGNMENT INSTRUCTIONS**

Turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| .1 MFD. | High side to pin 6 (grid) of 7H7. Low side to chassis. | 455KC | BC | Low freq. end (Variable fully closed) | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. |
| 200 MMF. | High side to ant. terminal. Low side to chassis. | 1750KC | " | High freq. end (Variable fully open). | " | A5 | " " " " |
| 200 MMF. | " | 1410KC | " | Tune for maximum output. | " | A6,A7. | " " " " |
| 200 MMF. | " | 600KC | " | " | " | A8 | Adjust for maximum output. Recheck A5 at 1750KC and A6 and A7 at 1410KC. |
| 400 ohms | " | 18.3MC | SW | High freq. end. (Variable fully open) | " | A9 | Adjust for maximum output. |
| 400 ohms | " | 15.0MC | " | Tune for maximum output. | " | A10 | Rock dial and adjust for maximum output. |

SILVERTONE
MODELS 6092 (CH. 101.672-B),
6093 (CH. 101.672-1A)



"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: SILVERTONE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Osc. & Bias Con. | 7S6 | 7S6 | 8W | |
| 2 | Converter | 7H7 | 7H7 | 8V | |
| 3 | IF Amp. | 6SK7GT | 6SK7GT | 8N | |
| 4 | Det.-AVC-AF | 6SQ7GT | 6SQ7GT | 9G | |
| 5 | Phase Inverter | 6SC7JT | 6SC7JT | 9L | |
| 6 | Power Output | 6K6JT/G | 6K6GT/G | 7S | |
| 7 | Power Output | 6K6JT/G | 6K6GT/G | 7S | |
| 8 | Rectifier | 5Y3G | 5Y3G | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

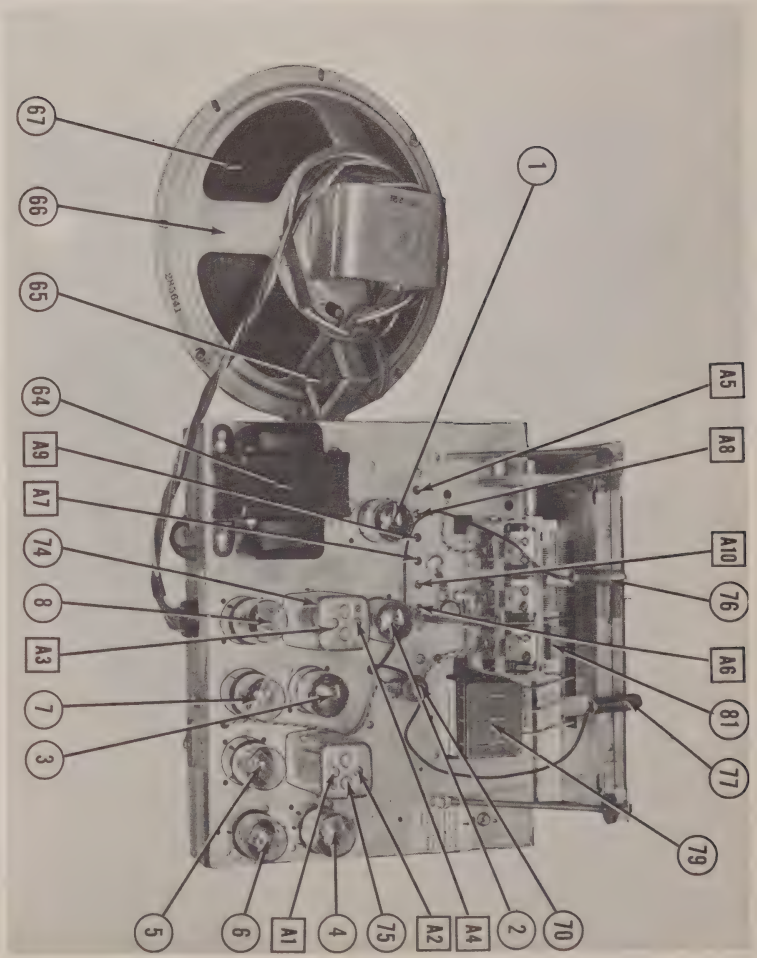
| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: SILVERTONE PART No. | MALLORY PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 9A | 30 | 375 | R45829 | FP444* | DY-2x30-450† | EL-330† | | BR3045 | Filter - Yellow |
| B | 30 | 275 | | | | | | BR3045 | " - Red |
| 10 | .002 | 600 | | TP405 | S-6-002 | TC-22 | 684-002 | DT6D2 | 6K6 Plate Bypass |
| 11 | .002 | 600 | | TP405 | S-6-002 | TC-22 | 684-002 | DT6D2 | " " " |
| 12 | .01 | 600 | | TP410 | S-6-01 | TC-11 | 684-01 | DT6S1 | Audio Coupling |
| 13 | .005 | 400 | | TP407 | S-6-005 | TC-25 | 484-005 | DT6D5 | " " |
| 14 | .01 | 400 | | TP421 | S-4-01 | TC-11 | 484-01 | DT4S1 | Tone Compensation |
| 15 | .1 | 400 | | TP422 | S-4-1 | TC-1 | 484-.1 | DT4P1 | RF Bypass Pwr. Supp. |
| 17 | .01 | 600 | | TP410 | S-6-01 | TC-11 | 684-01 | DT6S1 | Audio Coupling |
| 18 | .008 | 400 | | TP450 | S-4-01 | TC-11 | 484-01 | DT4S1 | Tone Compensation |
| 19 | .003 | 400 | | TP406 | S-6-003 | TC-23 | 484-003 | DT6L3 | " " |
| 20 | .002 | 600 | | TP405 | S-6-002 | TC-22 | 684-002 | DT6D2 | Audio Coupling |
| 21 | .1 | 400 | | TP422 | S-4-1 | TC-1 | 484-.1 | DT4P1 | IF Screen Bypass |
| 22 | .1 | 200 | | TP422 | S-4-1 | TC-1 | 484-.1 | DT4P1 | AVC Filter |
| 23 | .1 | 200 | | TP422 | S-4-1 | TC-1 | 484-.1 | DT4P1 | 1st Cath. Bypass |
| 24 | .01 | 400 | | TP421 | S-4-01 | TC-11 | 484-01 | DT4S1 | 7Z6 Plate Decoupling |
| 25 | .1 | 400 | | TP422 | S-4-1 | TC-1 | 484-.1 | DT4P1 | Conv. Plate Bypass |
| 26 | .1 | 400 | | TP422 | S-4-1 | TC-1 | 484-.1 | DT4P1 | Conv. Screen Bypass |
| 27 | .05 | 200 | | TP426 | S-4-05 | TC-15 | 484-05 | DT4S5 | AVC Filter |
| 28 | .05 | 200 | | TP426 | S-4-05 | TC-15 | 484-05 | DT4S5 | RF Coupling |
| 29 | 100 | 500 | | MC235 | M0.5-31 | 1FM-31 | 1468-0001 | SW5T1 | Diode Coupling |
| 30 | 100 | 500 | | MC235 | M0.5-31 | 1FM-31 | 1468-0001 | SW5T1 | Audio Plate Bypass |
| 31 | 500 | 500 | | MC245 | M0.5-35 | 1FM-35 | 1468-0005 | SW5T5 | Tone Compensation + |
| 32 | 50 | 500 | | MC225 | M0.5-45 | 1FM-45 | 1468-00005 | SW5Q5 | " " |
| 33 | 100 | 500 | | MC235 | M0.5-31 | 1FM-31 | 1468-0001 | SW5T1 | Osc. Grid Capacitor |
| 34 | 4000 | 300 | | MC463 | MW.5-24 | 1FM-24 | 1467-004 | 1D5D4 | Fixed Padder |
| 35 | 100 | 500 | | MC235 | M0.5-31 | 1FM-31 | 1468-0001 | SW5T1 | RF Filter |

*Parallel sections to obtain 40-40 MFD. and mount in clip.
†Use with mounting clip.
+Not used in all models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: SILVERTONE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 33A | 2 Meg. | 1 | R47240 | DTL36 | D13-130AA | | Volume Control |
| B | Shaft | | Not Req. | S51 | A | | Attach to 33A per instructions |
| 37A | 1 Meg. | 1 | R47236 | MR53 | D14-137 | | Tone Control |
| B | Shaft | | Not Req. | Not Req. | A | | Attach to 37A per instructions |
| C | Switch | | " " | M26 | 41 | | " " " " " |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA SILVERTONE PART No. | REPLACEMENT DATA IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 38 | 1000Ω | 1/3 | | BTS-1000 | Br.-Blk.-Red RF Blocking |
| 39 | 1 Meg. | 1/3 | | BTS-1 Meg. | Br.-Blk.-Grn. Bias Diode Load |
| 40 | 1 Meg. | 1/3 | | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 41 | 47Ω | 1/3 | | BW-½-47 | Yl.-Vi.-Blk. Osc. Cathode |
| 42 | 100Ω | 1/3 | | BW-½-100 | Br.-Blk.-Br. Parasitic Suppressor |
| 43 | 22KΩ | 1/3 | | BTS-22K | Red-Red-Or. Osc. Grid |
| 44 | 120KΩ | 1/3 | | BTS-120K | Br.-Red-Yl. Converter Screen Dropping |
| 45 | 6200Ω | 1 | | BTA-6200 | Gray-Red-Red Osc. Plate Dropping |
| 46 | 100Ω | 1/3 | | BW-½-100 | Br.-Blk.-Br. Parasitic Suppressor |
| 47 | 10KΩ | 1/3 | | BTS-10K | Br.-Blk.-Or. Converter Plate Filter |
| 48 | 82KΩ | 1/3 | | BTS-82K | Gray-Red-Or. IF Screen Dropping |
| 49 | 1 Meg. | 1/3 | | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 50 | 1 Meg. | 1/3 | | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 51 | 220KΩ | 1/3 | | BTS-220K | Red-Red-Yl. 1st AF Plate Load |
| 52 | 4.7 Meg. | 1/3 | | BTS-4.7 Meg. | Yl.-Vi.-Grn. 1st AF Grid |
| 53 | 270Ω | 1/3 | | BW-½-270 | Red-Vi.-Br. IF Cathode |
| 54 | 1 Meg. | 1/3 | | BTS-1 Meg. | Br.-Blk.-Grn. Tone Compensation |
| 55 | 560KΩ | 1/3 | | BTS-560K | Grn.-Blue-Yl. Tone Compensation |
| 56 | 27KΩ | 1/3 | | BTS-27K | Red-Vi.-Or. Tone Compensation |
| 57 | 220K | 1/3 | | BTS-220K | Red-Red-Yl. Tone Compensation |
| 58 | 56KΩ | 1/3 | | BTS-56K | Grn.-Blue-Or. Tone Compensation |
| 59 | 180KΩ | 1/3 | | BTS-180K | Br.-Gray-Yl. Inverter Plate Load |
| 60 | 47KΩ | 1/3 | | BTS-47K | Yl.-Vi.-Or. Inverter Grid |
| 61 | 330KΩ | 1/3 | | BTS-330K | Or.-Or.-Yl. Output Grid |
| 62 | 270KΩ | 1/3 | | BTS-270K | Red-Vi.-Yl. Output Grid |
| 63 | 270Ω | 2 | | BW-2-270 | Red-Vi.-Br. Output Cathodes |

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | RATING SEC. 3 | REPLACEMENT DATA SILVERTONE PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA THORDASON PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 64A | 117VAC @ .630A | 630VCT @ .080A | 5.3VAC @ 1.5A | 6.3VAC @ 2.7A | R45953 | P-8312§ | T-22R04§ | 60 Cycle Oper |
| 64B | | | | | R45954 | | | 25 Cycle Oper |

§Use universal mounting brackets.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA SILVERTONE PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA THORDAR'N PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| 65 | 4700Ω | 3.5Ω | 60Ω | .05Ω | R45937 | A-3353 | T-22548 | |

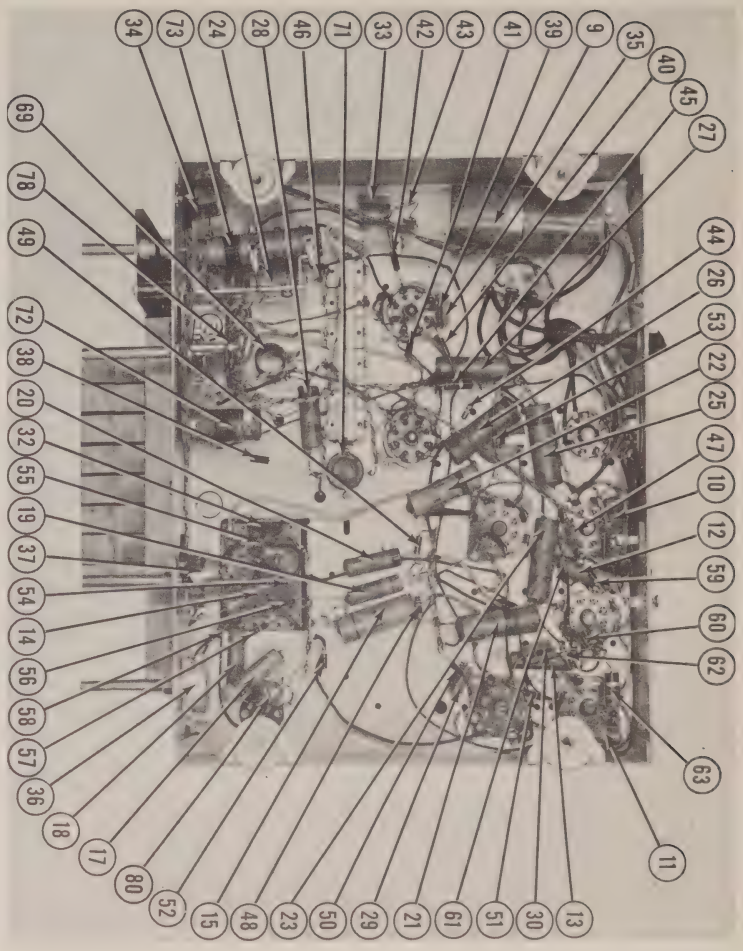
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA SILVERTONE PART No. | REPLACEMENT DATA JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD RES. | VC IMP. | | ST-441‡ | | ‡Add 2500Ω 5W Resistor in Parallel with Field Coil |
| 66 | 650Ω | 3.2Ω | R57221 | Mod. 610-RS | | |
| | CONE DIA. | VC DIA. | | | | |
| 67 | 9½" | 1" | R45836 | | | Field Coil Original Part No. R45836 |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA SILVERTONE PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 68 | Loop Ant. | 0Ω | .1Ω | | | |
| 69 | SW Ant.Coil | .3Ω | .1Ω | R47195 | 14-1044 | |
| 70 | LoopLoadCoil | 2Ω | | R47193 | | |
| 71 | CouplingCoil | 0Ω | | R57137 | | †reselector |
| 72 | Det. Coil | | 2.2Ω | R47194 | | |
| 73A | SC Osc.Coil | | 5.2Ω | R47192 | | Items 73A, 73B wound on same form |
| 73B | " " " | | 0Ω | R47192 | | |
| 74 | Input IF | 14Ω | 14Ω | R45305 | 16-6658 | |
| 75 | Output IF | 16Ω | | R45306 | 16-6670★ | ★Add 150KΩ resistor from low end secondary to ground. |

# CHASSIS—BOTTOM VIEW



NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION. PUSH BUTTONS IN "OUT" POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7E6 | 0V. | 155V.DC | 0V. | .9V.DC | 0V. | -4.4V.DC | .9V.DC | 6.5V.AC |
| 2 | 7H7 | 6.5V.AC | 195V.DC | 100V.DC | .9V.DC | 0V. | -4.8V.DC | .9V.DC | 0V. |
| 3 | 6SK7GT | 0V. | 6.5V.AC | 2.35V.DC | 0V. | 2.35V.DC | 95V.DC | 0V. | 237V.DC |
| 4 | 6SQ7GT | 0V. | * | 0V. | -.35V.DC | -.3V.DC | 150V.DC | 0V. | 6.5V.AC |
| 5 | 6SQ7GT | 0V. | -.35V.DC | 0V. | 0V. | 0V. | 93V.DC | 6.5V.AC | 0V. |
| 6 | 6K6GT/G | 0V. | 0V. | 230V.DC | 237V.DC | -.2V.DC | 0V. | 6.5V.AC | 17V.DC |
| 7 | 6K6GT/G | 0V. | 0V. | 227V.DC | 237V.DC | -.2V.DC | 197V.DC | 6.5V.AC | 17V.DC |
| 8 | 5Y3G | 0V. | 320V.DC | 0V. | 315V.AC | 0V. | 315V.AC | 0V. | 320V.DC |

* DO NOT MEASURE THIS POINT EXCEPT WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

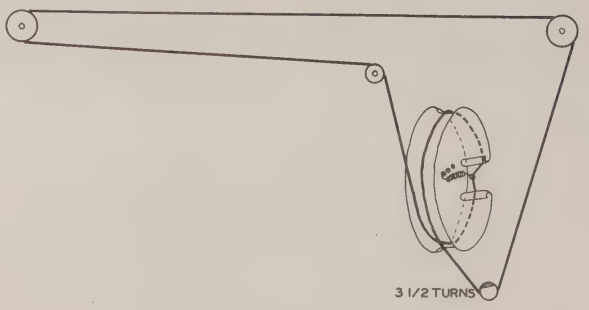
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 7E6 | 0Ω | 118 KΩ | 20KΩ | 50 Ω | 0Ω | 1.1MEG | 50Ω | .1Ω |
| 2 | 7H7 | .1Ω | 120KΩ | 230KΩ | 50 Ω | 0Ω | 2MEG | 50Ω | 0Ω |
| 3 | 6SK7GT | 0Ω | .1Ω | 255Ω | 1.2MEG | 255Ω | 192KΩ | 0Ω | 110KΩ |
| 4 | 6SQ7GT | 0Ω | * | 0Ω | 3MEG | 148KΩ | 330KΩ | 0Ω | .1Ω |
| 5 | 6SQ7GT | 0Ω | 46KΩ | 0Ω | 0Ω | 0Ω | 290KΩ | .1Ω | 0Ω |
| 6 | 6K6GT/G | 0Ω | 0Ω | 110KΩ | 110KΩ | 300KΩ | INF | .1Ω | 270Ω |
| 7 | 6K6GT/G | 0Ω | 0Ω | 110KΩ | 110KΩ | 355KΩ | 120KΩ | .1Ω | 270Ω |
| 8 | 5Y3G | 0Ω | 110KΩ | INF | 150Ω | INF. | 143Ω | INF | 110KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PUSH BUTTON ADJUSTMENTS

1. Turn on receiver and allow to warm up at least five minutes.
2. Remove knob from lever to be adjusted. (The knob slips straight off the lever).
3. Loosen (turn counter-clockwise) the screw on the push button lever two or three turns, using a small screwdriver.
4. Using the Station Selector Knob, accurately tune in the station to be set up.
5. Push the push button lever all the way in. If the station becomes detuned, retune it. Turning the tuning knob back and forth slightly, either side of the station while holding the lever in, will help obtain a precise setting. Tighten the screw in the lever while the lever is held pushed in and the station accurately tuned.
6. Replace the push button knob on its lever making sure the slot in the knob and the end of the lever are in line.
7. Follow the same proceedure for each of the remaining push buttons.




DIAL CORD DRIVE

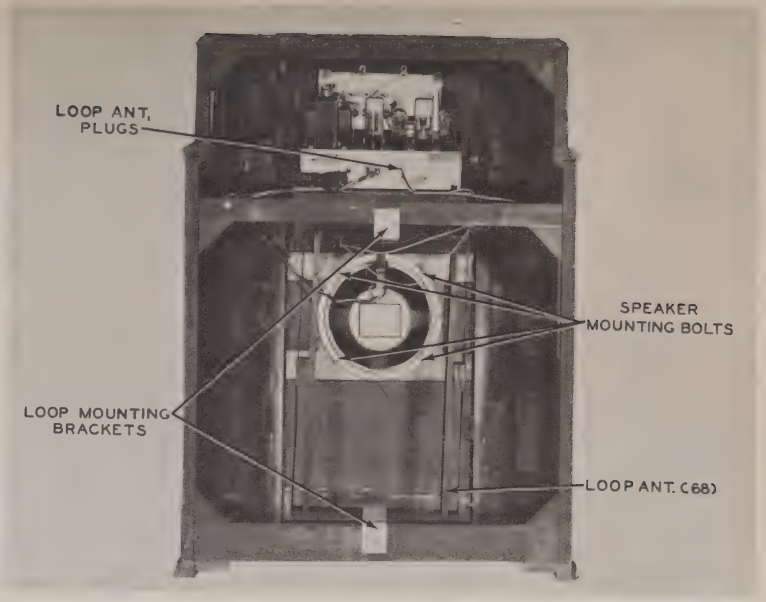
# PARTS LIST AND DESCRIPTIONS (Continued)

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA SILVERTONE PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 76 | Bayonet | 6-8 | 0.25 | Blue | 14914 | | Type 44 |
| 77 | " | 6-8 | 0.25 | " | 14914 | | " " |

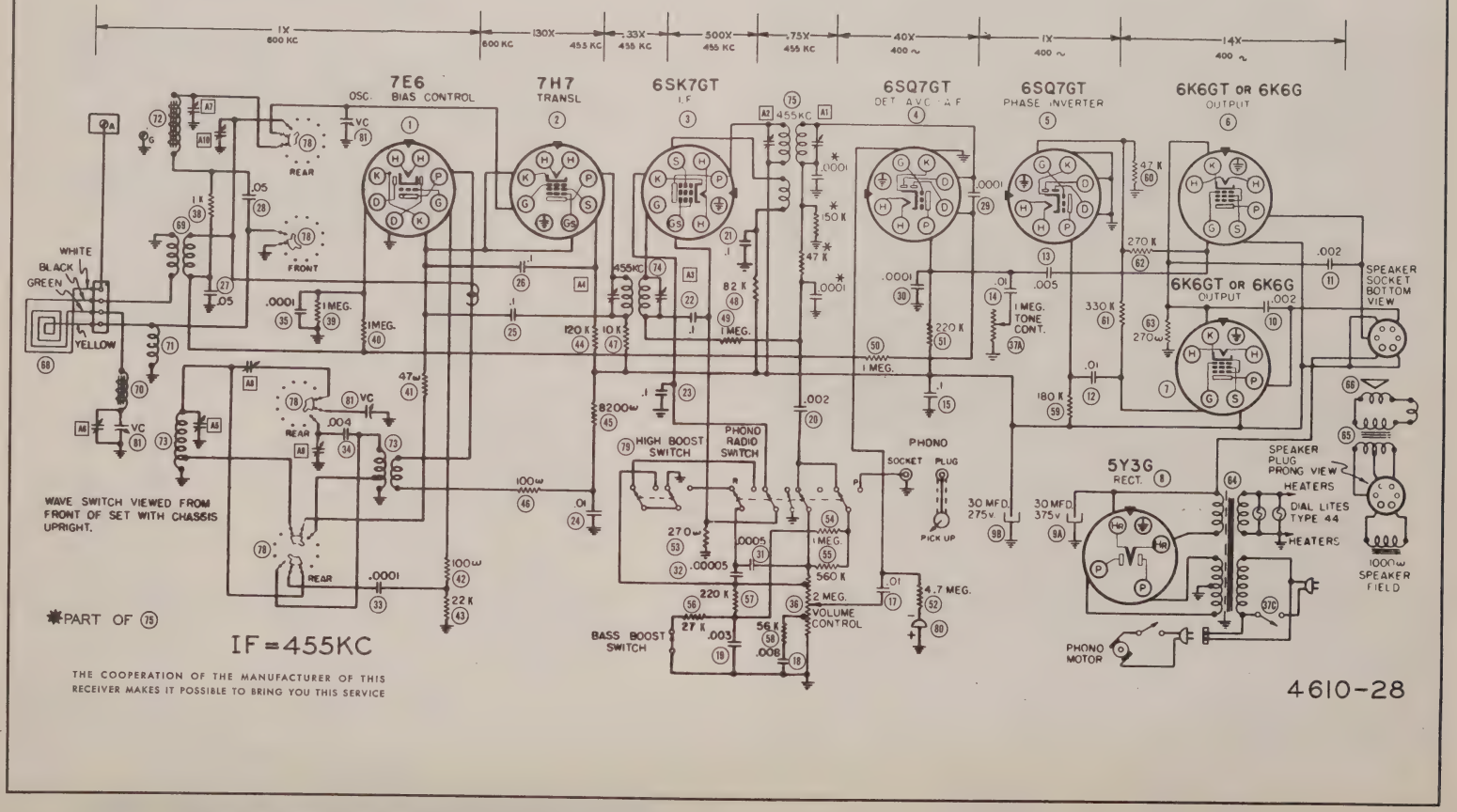
## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| 78 | Wave Switch | R47191 | |
| 79 | Switch | R45844 | Tone-Phono-Tel-Freq. Mod. |
| 80 | Bias Cell | R17915 | |
| 81 | Tuner | R47259 | P.B. with Var. Capacitor |
| | Trimmer Assby. | R47199 | 6 Gang A5, A6, A7, A8, A9, A10 |
| | Push Buttons | R57285 | Tone-Phono-Tel-Freq. Mod. (6092) |
| | " " | R57205 | " " " " " (6093) |
| | " " | R57284 | Stations (Model 6092) |
| | " " | R57204 | " " 6093) |
| | Dial Station | R57234 | |
| | Escutcheon | R57271 | Dial (Model 6092) |
| | " | R57231 | " (Model 6093) |
| | Knob | R40940 | On-Off & Tuning |
| | " | R49939 | Tuning |
| | " | R49941 | Volume |
| | " | R49943 | Wave Switch |



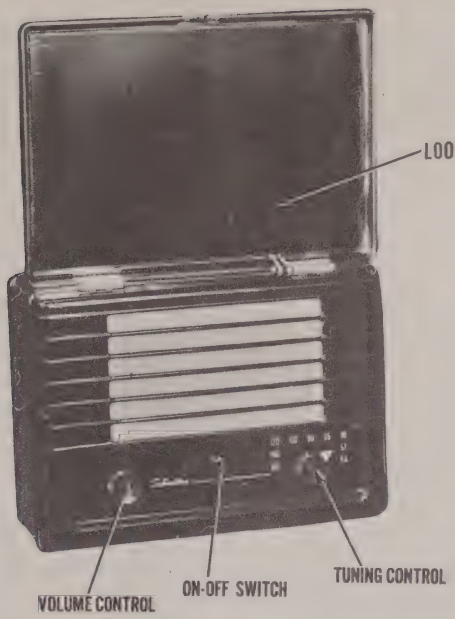

DISASSEMBLY INSTRUCTIONS

1. Remove the four push-on type knobs and felt washers from the front panel.
2. Remove set screw from speaker plug.
3. Disconnect speaker plug from back of chassis.
4. Disconnect the four colored antenna plugs from jacks on back of chassis.
5. Remove four bolts and square washers holding chassis to chassis board. Remove chassis.
6. Remove top antenna loop bracket from back of cabinet. Remove antenna loop.
7. Remove four nuts from speaker bolts. Remove speaker from cabinet.




The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

SILVERTONE
MODELS 7166 (CH. 101.823 & 101.823-1),
7165 (CH. 101.823A & 101.823-1A)




SILVERTONE MODEL 7166

| | |
|---|---|
| TRADE NAME | Silvertone Models 7166 (Ch. 101.823 & 101.823-1), 7165 (Ch. 101.823A & 101.823-1A) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill. |
| TYPE SET | Three Power Personal Portable Superheterodyne Receiver - Self Contained Loop Antenna |
| TUBES (FIVE) | Types, 1R5 Osc.-Transl., 1L4 IF Amp., 1S5 Det.-AVC-AF, 1LB4 Power Output, 117Z3 Rectifier. |
| POWER SUPPLY | 105-125 Volts AC- 6 Volt "A" Battery (Four 1.5 Volt "D" Cells) & 67½ Volt "B" Batt. (Sears No. 6480) |

TUNING RANGE—BROADCAST 540-1610KC RATINGS-150 Amp. @ 117 VAC or 60MA @ 6.4 VDC and 11 MA @ 68 VDC

ALIGNMENT INSTRUCTIONS

Use battery power for alignment whenever possible. If a-c power is used, use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .05 MFD | High side to pin #6 (grid) of 1R5. Low side to B-. | 455KC | Low freq. end (Variable fully closed) | Across voice coil | A1,A2, A3. | Adjust for maximum output. If a-c power is used without an isolation trans., reduce dummy ant. to 200 MMF. to reduce hum modulation. |
| | Loop | 1610KC | High freq.end (Variable fully open) | " | A4 | Connect output of signal generator to a few turns of wire. Place approx. one foot from receiver loop. Adjust A5 for maximum output. |
| | " | 1400KC | Tune for maximum output. | " | A5 | Adjust for maximum output. |
| | " | 600KC | " | " | A6 | Rock variable and adjust for maximum output. Recheck A5 and A6. |

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| | | SILVERTONE PART No. | STANDARD REPLACEMENT | | |
| 1 | Osc.-Transl. | 1R5 | 1R5 | 7AT | |
| 2 | IF Amp. | 1L4 | 1L4 | 6AR | |
| 3 | Det.-AVC-AF | 1S5 | 1S5 | 6AU | |
| 4 | Power Output | 1LB4 | 1LB4 | 6AD | |
| 5 | Rectifier | 11Z3 | 11Z3 | 4BR | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | SILVERTONE PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | |
| 6A | 60 | 150 | R60803 | | | | | | ▲ Filter |
| B | 30 | 150 | | | | | | | ■ " |
| C | 100 | 25 | | | | | | | ▲ Filament Bypass |
| D | 40 | 25 | | | | | | | ■ " |
| 7 | .05 | 400 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 8 | .005 | 400 | | S-6-005 | TC-25 | 484-005 | DT6D5 | TP408 | Audio Coupling |
| 9 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Screen Bypass |
| 10 | .001 | 600 | R52846 | S-6-001 | TC-21 | 684-001 | DT6D1 | TP404 | Audio Coupling |
| 11 | .05 | 200 | R43661 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Filament Bypass |
| 12 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Bypass Pwr. Supp. |
| 13 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Isolation |
| 14 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Filament Bypass |
| 15 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Conv. Screen Bypass |
| 16 | .05 | 200 | R43661 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 17 | 250 | 500 | | MO.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | Output Plate Bypass |
| 18 | 50 | 500 | | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Audio Plate Bypass |
| 19 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Bias Filter |
| 20 | 250 | 500 | | MO.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | IF Grid |
| 21 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Osc. Grid Capacitor |
| 22 | 100 | 500 | | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | RF Coupling |
| 23 | 250 | 500 | | MO.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | Fixed Padder |

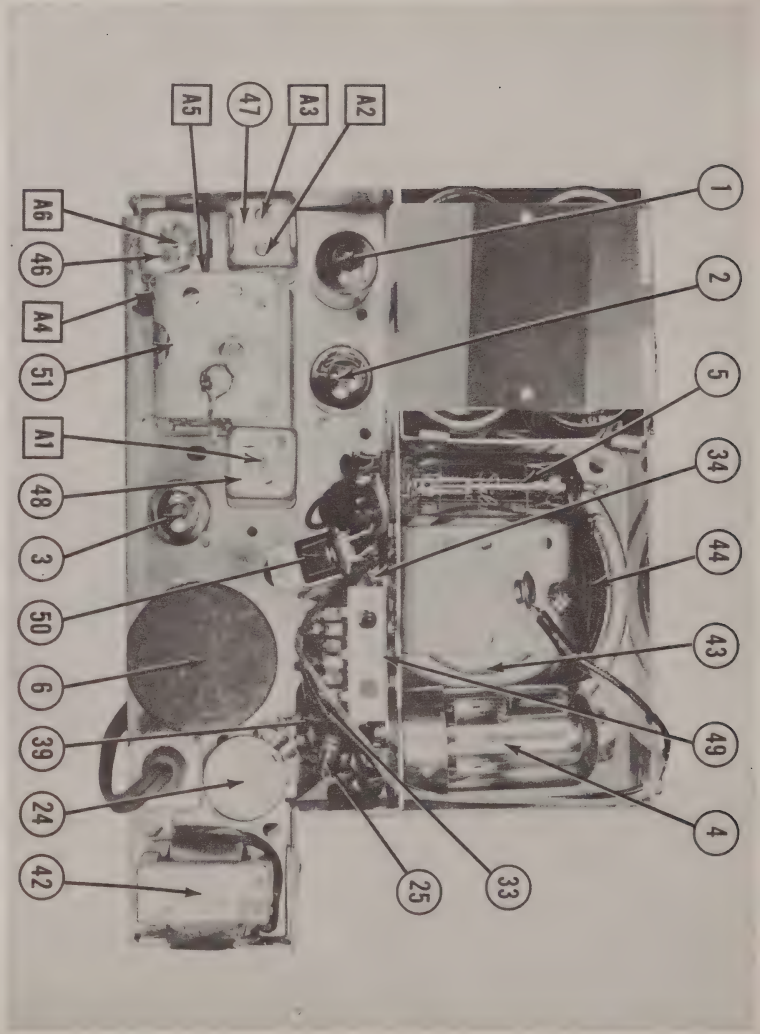
## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | |
| 24 | 1 Meg. | 1 | R60807 | | | | Volume Control |

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SILVERTONE PART No. | IRC PART No. | |
| 25 | 3.3 Meg. | 1/3 | | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 26 | 470Ω | 1/3 | | BTS-470 | Yl.-Vi.-Br. Filament Shunt |
| 27 | 100KΩ | 1/3 | | BTS-100K | Br.-Blk.-Yl. Oscillator Grid |
| 28 | 8200Ω | 1/3 | | BTS-8200 | Gray-Red-Red Voltage Dropping |
| 29 | 3.3 Meg. | 1/3 | | BTS-3.3 Meg. | Or.-Or.-Grn. IF Grid |
| 30 | 3.3 Meg. | 1/3 | | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 31 | 1.8 Meg. | 1/3 | | BTS-1.8 Meg. | Br.-Gray-Grn. Bias Network |
| 32 | 100Ω | 2 | | BW-2-100 | Rectifier Ballast |
| 33 | 1800Ω | 5 | | | Voltage Dropping |
| 34 | 1500Ω | 1 | | BTS-1500 | br.-Grn.-Red Voltage Dropping |
| 35 | 2200Ω | 1/3 | | BTS-2200 | Red-Red-Red Bleeder |
| 36 | 10 Meg. | 1/3 | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 37 | 560KΩ | 1/3 | | BTS-560K | Grn.-Blue-Yl. 1st AF Plate Load |
| 38 | 4.7 Meg. | 1/3 | | BTS-4.7 Meg. | Yl.-Vi.-Grn. 1st AF Screen Dropping |
| 39 | 4.7 Meg. | 1/3 | | BTS-4.7 Meg. | Yl.-Vi.-Grn. Output Grid |
| 40 | 470KΩ | 1/3 | | BTS-470K | Yl.-Vi.-Yl. Bias Network |
| 41 | 680Ω | 1/3 | | BTS-680 | Blue-Gray-Br. Filament String |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | SILVERTONE PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 42 | 12000Ω | 2.5Ω | 850Ω | .5Ω | R60817 | | | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | SILVERTONE PART No. | JENSEN PART No. | | |
| 43 | FIELD IMP. | VC IMP. 2.5Ω | R60812 | | | |
| 44 | CONE DIa. 3-7/15" | VC DIa. 1/2" | R60890 | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | |

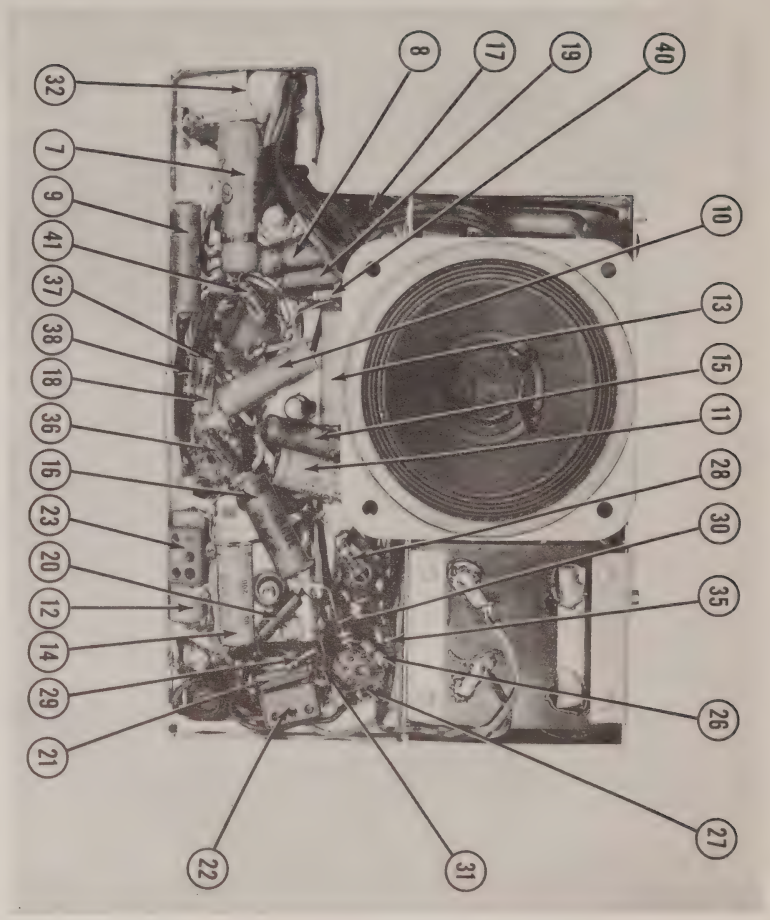
## R F COILS

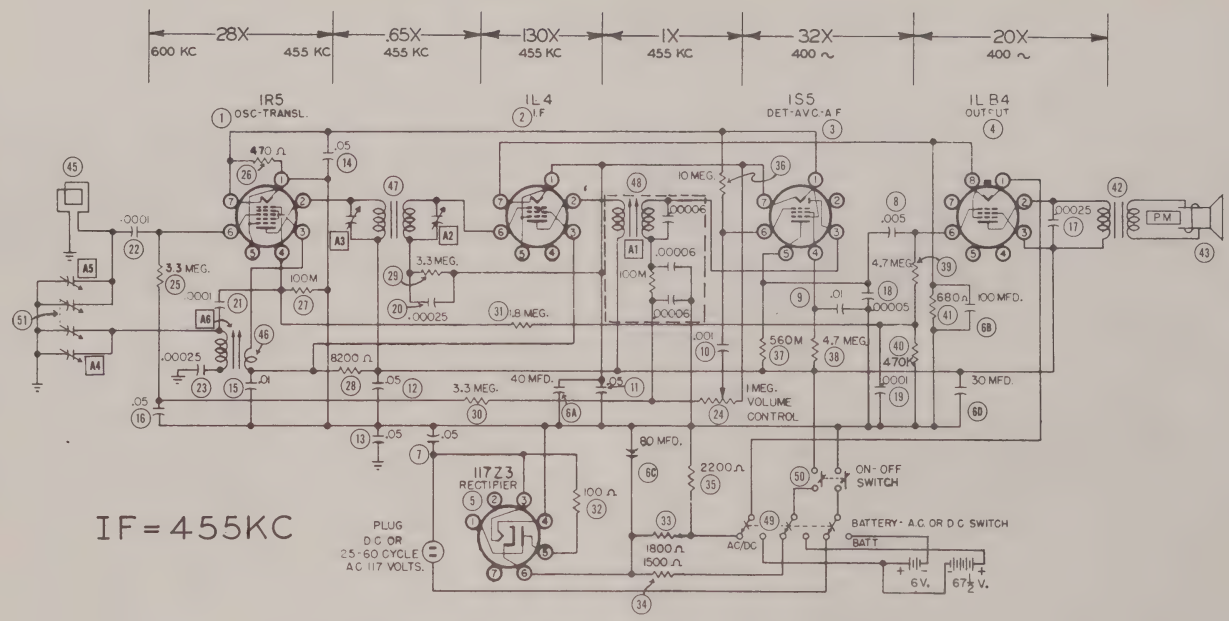
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | SILVERTONE PART No. | MEISSNER PART No. | |
| 45A | Loop Ant. | | | R60916 | | Used on Model 101-823A |
| B | Loop Ant. | | | R60872 | | " " " 101-823 |
| C | Loop Ant. | | | R61673 | | " " " 101-823-1 |
| D | Loop Ant. | | | R61674 | | " " " 101-823-1A |
| 46 | Output IF | 1.5Ω | 3.8 | R60805 | | |
| 47 | Input IF | 19Ω | 17.5Ω | R60815 | | |
| 48 | Output IF | 27Ω | | R60816 | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| 49 | AC Batt. Switch | R60813 | TPDT |
| 50 | On-Off Switch | R60814 | DPST |
| 51 | 2 Gang Var. Cap | R60804 | Osc. & Ant. Trimmers Included |
| | Knob-Tuning | R60800 | Ch. 101.823 |
| | Knob-Tuning | R60905 | Ch. 101.823-A |
| | Knob-Volume | R60889 | Ch. 101.823 |
| | Knob-Volume | R60906 | Ch. 101.823-A |

# CHASSIS—BOTTOM VIEW






NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN AC–DC POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | 0V. | 80V.DC | 57V DC | 0V. | 0V. | 0V. | 1.5V.DC | |
| 2 | 1L4 | 2.9V.DC | 80V.DC | 57V DC | 5.5V.DC | 2.9V.DC | .2V.DC | 4.2V.DC | |
| 3 | 1S5 | 1.5V.DC | 0V. | .5V DC | 14V.DC | 3.1V.DC | 0V. | 2.9V.DC | |
| 4 | 1LB4 | 5.5V.DC | 75V.DC | 80V DC | 0V. | –4V.DC | 0V. | .1V.DC | 4.2V.DC |
| 5 | 117Z3 | 110V.AC | 99V.DC | 117V AC | 0V. | 110V.AC | 99V.DC | 0V. | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1R5 | * | 3.5Kn | 12Kn | 85Kn | * | 7 MEG | * | |
| 2 | 1L4 | * | 3.5Kn | 12Kn | 510n | * | 3.2 MEG. | * | |
| 3 | 1S5 | * | 0n | 900Kn | 4.7 MEG. | 560Kn | 10 MEG. | * | |
| 4 | 1LB4 | * | 4Kn | 3.5Kn | INF. | 350Kn | 5 MEG. | 4 MEG. | * |
| 5 | 117Z3 | 460n | 2100n | 370n | 0n | 460n | 2100n | INF. | |

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

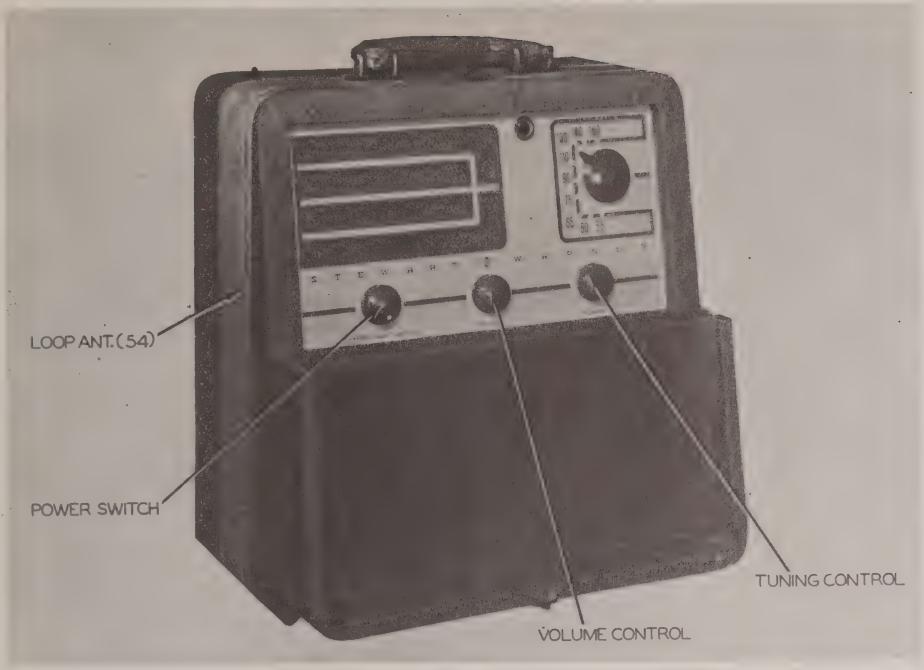
4610-29

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to bottom end of volume control.

1 - DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.




STEWART WARNER 9007-F

| | |
|---|---|
| TRADE NAME | Stewart-Warner, Models 9007A, F, G |
| MANUFACTURER | Stewart-Warner Corp., 1826 Diversey Pkway., Chicago, Ill. |
| TYPE SET | Three Power Portable Superheterodyne Receiver - Self Contained Loop Antenna |
| TUBES (SIX) | Types, 1A7GT 1st Det.-Osc., 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 35Z5GT Rectifier, 35Z5GT Battery Charger |
| POWER SUPPLY | 117 Volts AC or 9 Volts DC "A" Battery & 90 Volts DC "B" Battery in Pack Form (Eveready Type 754 or equiv.) RATING .380 Amp. @ 117 volts AC or 53MA @ 8.9 volts DC & 11MA @ 90 volts DC |
| TUNING RANGE—BROADCAST | 540-1640KC |

ALIGNMENT INSTRUCTIONS

To set pointer turn variable fully closed and set pointer in vertical position pointing downward. Use battery power for alignment whenever possible. If ac power is used, use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| 300 MMF | High side to grid cap. of 1A7. Low side to chassis. | 455KC | Any point of non-interfering signal. | Across voice coil | A1, A2, A3. | Adjust for maximum output. Replace chassis in cabinet and replace dial pointer. |
| 300 MMF. | High side to center terminal on ant. terminal strip. Low side to chassis. | 1500KC | 1500KC | " | A4 | Adjust for maximum output. |
| 300 MMF. | " | 1500KC | Tune for maximum output. | " | A5 | " " " " |

STEWART-WARNER
MODELS 9007-A, -F, -G

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: STEWART-WARNER PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | 1st Det.-Osc. | 1A7GT | 1A7GT | 7Z | |
| 2 | IF Amp. | 1N5GT | 1N5GT | 5Y | |
| 3 | Det.-AVC-AF | 1H5GT | 1H5GT | 5Z | |
| 4 | Power Output | 3Q5GT | 3Q5GT | 7AF | |
| 5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |
| 6 | Batt. Charger | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: STEWART-WARNER PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 20 | 150 | 500714 | DY-309* | EL-320 | PAF44F | UP6CJ17 | | ■ Filter |
| B | 20 | 200 | | | | | | | ▲ " |
| C | 20 | 200 | | M-20-150 | | PRS250-20 | | | " |
| 8 | 4 | 150 | 502457 | M-4-150 | UT-41 | PRS150-4 | BR415 | TC40 | Conv. Screen Bypass |
| 9 | 50 | 25 | 502527 | M-50-25 | TA-50 | PRS25-50 | BR502 | TC29 | Filament Bypass |
| 10 | .05 | 200 | 502153 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 11 | .1 | 200 | 502155 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Pwr. Supp. Bypass |
| 12 | .002 | 400 | 502453 | S-6-002 | TC-22 | 484-002 | DT6D2 | TP405 | Output Plate Bypass |
| 13 | .01 | 400 | 502151 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 14 | .1 | 200 | 502155 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Audio Plate Decoup. |
| 15 | .004 | 400 | 502156 | S-6-004 | TC-24 | 484-004 | DT6D4 | TP407 | Audio Coupling |
| 16 | .1 | 200 | 502155 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Indicator Bypass |
| 17 | .1 | 200 | 502155 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Filament Bypass |
| 18 | .05 | 200 | 502153 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | IF Grid Bypass |
| 19 | .05 | 200 | 502153 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 20 | .05 | 200 | 502153 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Filament Bypass |
| 21 | .004 | 600 | 502150 | S-6-004 | TC-24 | 684-004 | DT6D4 | TP407 | Ant. Coupling |
| 22 | 110 | 500 | 502160 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Audio Plate Bypass |
| 23 | 50 | 500 | 502159 | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | IF Bypass Vol. Cont. |
| 24 | 50 | 500 | 502159 | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | IF Bypass Diode |
| 25 | 50 | 500 | 502159 | MO.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Osc. Grid Capacitor |

*Do not use bypass section.

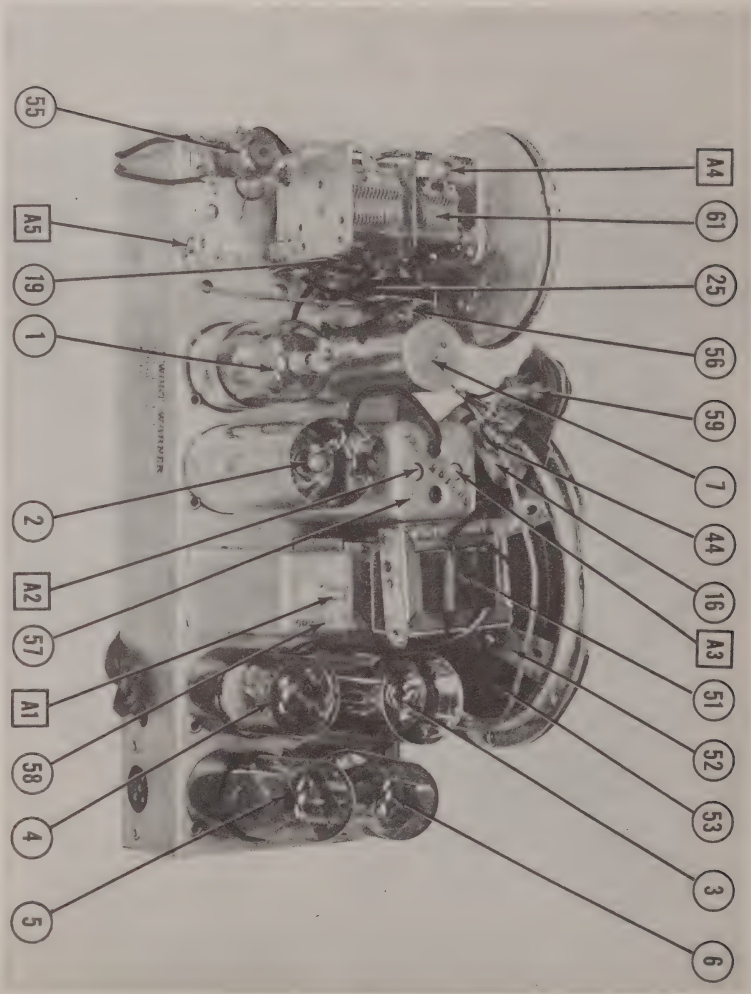
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: STEWART-WARNER PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 26A | 1 Meg. | 1 | 502525 | MK402 | D13-137 | AM-63-Z | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KSS-3 | Attach to 26A per instructions |
| C | Switch | | " " | M24 | 45 | SW-A4 | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: STEWART-WARNER PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 27 | 220KΩ | ½ | 502133 | BTS-220K | Red-Red-Yl. Oscillator Grid |
| 28 | 47KΩ | ½ | 502131 | BTS-47K | Yl.-Vi.-Or. Mixer Screen Dropping |
| 29 | 10 Meg. | ½ | 502136 | BTS-10 Meg. | Br.-Blk.-Blue IF Grid |
| 30 | 3.3 Meg. | ½ | 502269 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 31 | 100KΩ | ½ | 502132 | BTS-100K | Br.-Blk.-Yl. Diode Filter |
| 32 | 3.3 Meg. | ½ | 502269 | BTS-3.3 Meg. | Or.-Or.-Grn. 1st AF Grid |
| 33 | 1 Meg. | ½ | 502268 | BTS-1 Meg. | Br.-Blk.-Grn. 1st AF Plate Load |
| 34 | 470KΩ | ½ | 502134 | BTS-470K | Yl.-Vi.-Yl. 1st AF Plate Decoupling |
| 35 | 2.2 Meg. | ½ | 502135 | BTS-2.2 Meg. | Red-Red-Grn. Output Grid |
| 36 | 47Ω | 1 | 502454 | BW-1-47 | Yl.-Vi.-Blk. Rectifier Ballast |
| 37 | 47Ω | 1 | 502454 | BW-1-47 | Yl.-Vi.-Blk. " |
| 38A | 1460Ω | 10 | 500715 | AB-1450 | Voltage Divider-See Note 1 |
| B | 155Ω | 1 | | BW-1-150 | " " |
| C | 310Ω | 10 | | AB-300 | " " |
| 39 | 6800Ω | ½ | 502459 | BTS-6800 | Blue-Gray-Red Voltage Dropping |
| 40 | 27Ω | ½ | 502455 | BW-½-27 | Red-Vi.-Blk. " " |
| 41 | 330Ω | ½ | 502457 | BW-½-330 | Or.-Or.-Br. " " |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | STEWART-WARNER PART No. | IRC PART No. | |
| 42 | 15KΩ | ½ | 502266 | BTS-15K | Br.-Grn.-Or. Voltage Dropping |
| 43 | 1d30 Ω | 5 | 500712 | ABA-2000 | " " " - See Note 2 |
| 44 | 3.3 Meg. | ½ | 502269 | BTS-3.3 Meg. | Or.-Or.-Grn. Series Neon Indicator |
| 45 | 220Ω | ½ | 502456 | BW-½-220 | Red-Red-Br. Filament String |
| 46 | 220Ω | ½ | 502456 | BW-½-220 | Red-Red-Br. " " |
| 47 | 27Ω | ½ | 502455 | BW-½-27 | Red-Vi.-blk. " " |
| 48 | 330Ω | ½ | 502457 | BW-½-330 | Or.-Or.-Br. " " |
| 49 | 430Ω | ½ | 502458 | BW-½-470 | Yl.-Or.-Br. " " |

Note 1 - Connect three replacement resistors in series.
Note 2 - Set slider at 70Ω from one end.

## FILTER CHOKE

| ITEM NO. | RATINGS | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D.C. RESISTANCE | INDUCTANCE (0 CURRENT 1000~) | STEWART-WARNER PART NO. | STANCOR PART NO. | THORDARSON PART NO. | |
| 50 | 62 MA. | 220Ω | 4 Henries | 502528 | | T20052† | †Drill new mounting hole. |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | STEWART-WARN PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 51A | 10000Ω | 2.2Ω | 700Ω | .45Ω | 502902† | A-3879# | T22847# | | #Bend mounting tabs down, file out slots and mount on original bracket. †Used with speaker A-502491 |
| B | | | | | 502492 | | | | Used with speaker R-502491 |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | STEWART-WARNER PART No. | JENSEN PART No. | | |
| 52A | FIELD | VC IMP. | | ST-107 | | |
| B | PM | 2.2Ω | A-502491 | Mod. P5-V | | |
| | | | R-502491 | | | Alternate Speaker |
| | CONE DIA. | VC DIA. | | | | |
| 53A | 4-3/4" | 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |
| B | | | 502493 | | | Cone and Voice Coil for Alternate Speakers |

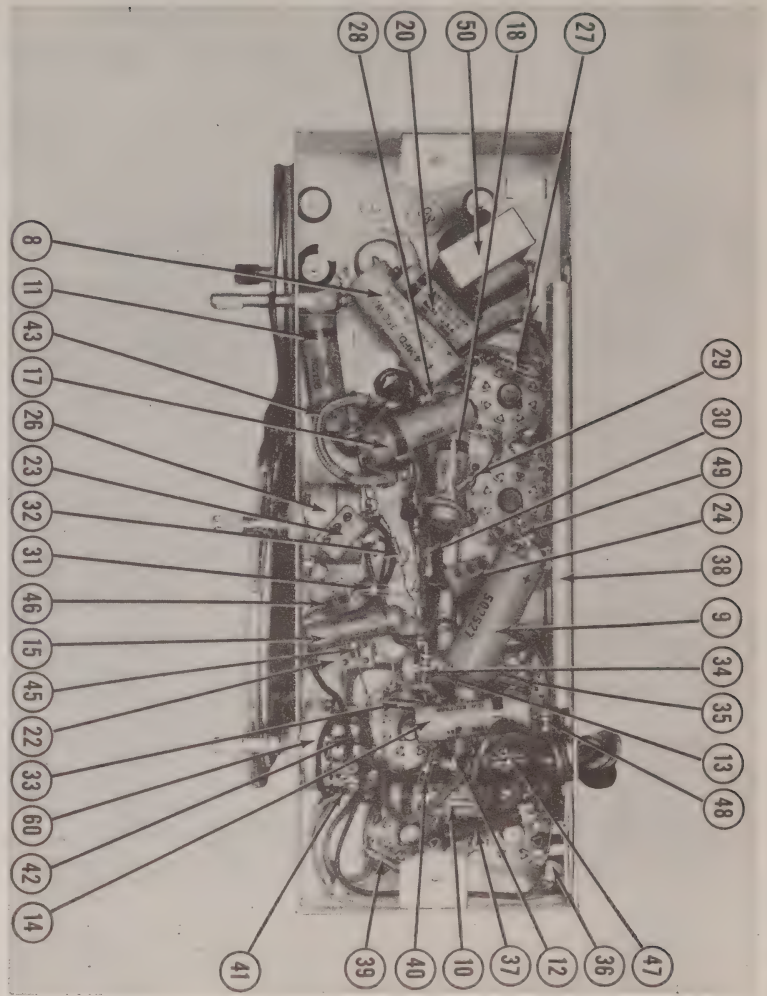
## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | STEWART-WARNER PART No. | MEISSNER PART No. | |
| 54 | Loop Ant. | | 0Ω | | | |
| 55 | Ant. Coup. Coil | .5Ω | 3Ω | 502499 | | |
| 56 | Osc. Coil | 2.5Ω | 5.5Ω | 502498 | 14-1040 | |
| 57 | Input IF | 16Ω | 3Ω | 502495 | 16-6658 | |
| 58 | Output IF | 40Ω | 40Ω | 500749 | 16-5742 | |

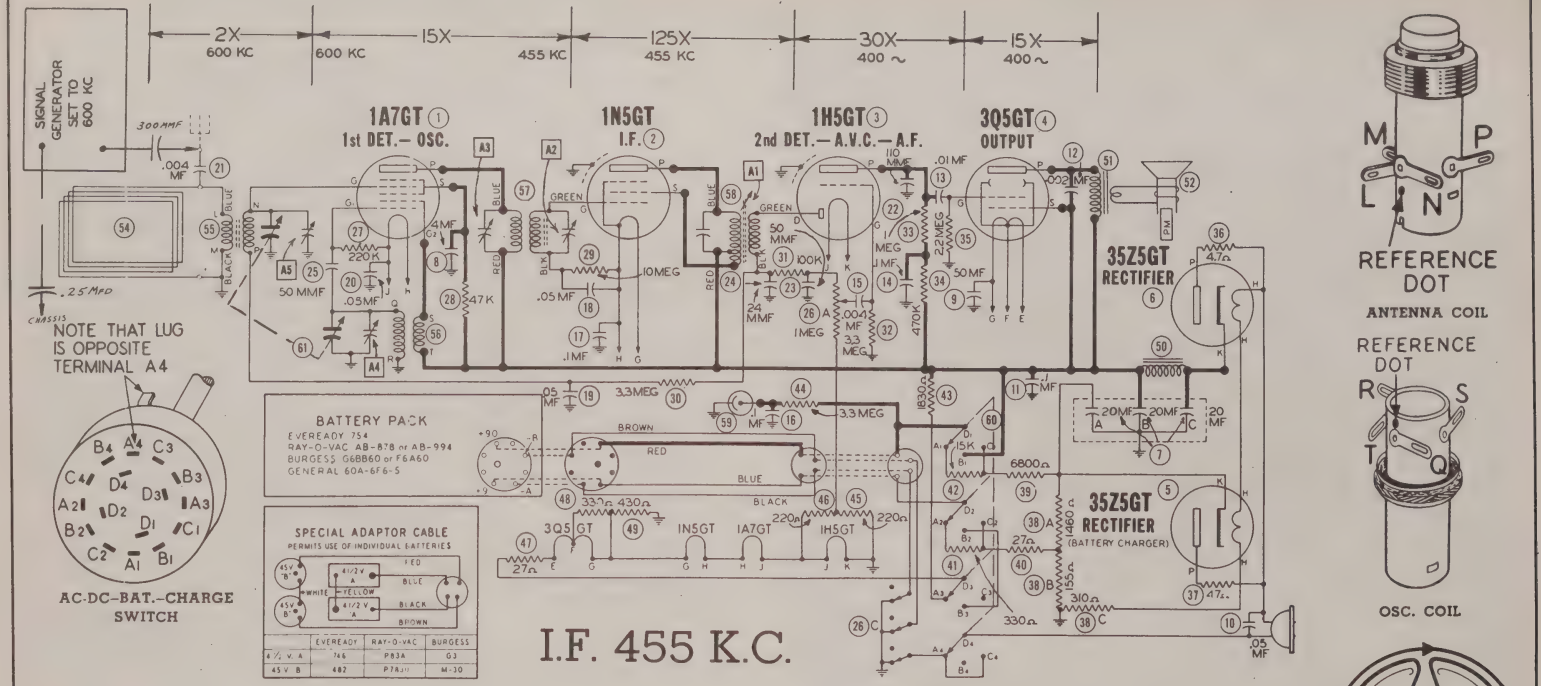
## MISCELLANEOUS

| ITEM No. | PART NAME | STEWART-WARNER PART No. | NOTES |
|---|---|---|---|
| 59 | Neon Lamp | 500713 | Indicator for batt. and AC |
| 60 | Batt-AC-DC-Charge Switch | 502526 | |
| 61 | 2 Gang Var. Cap | 502494 | Osc. Trimmer (A4) included |
| A5 | Trimmer | 119132 | (2-15 MMF) Ant. Trimmer |
| | Knob | 502544 | Volume or Tuning |
| | " | 502545 | AC-DC-Batt-Charge |
| | Pointer | 502546 | |

# CHASSIS—BOTTOM VIEW




STEWART-WARNER MODELS 8007A, E, F, G




NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN AC–DC POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0V. | 2.8V.DC | 97 V.DC | 58V.DC | -9V.DC | 97V.DC | 1.4 V.DC | 0V. | 0V. |
| 2 | 1N5GT | 0V. | 4 V.DC | 97 V.DC | 97 V.DC | 0V. | 0V. | 2.8V.DC | 0V. | 0V. |
| 3 | 1H5GT | 0V. | 1.4 V.DC | 49 V.DC | 79 V.DC | -2 V.DC | 11 V.DC | 0V. | 0V. | 0V. |
| 4 | 3Q5GT | 7.4 V.DC | 6.3 V.DC | 88 V. DC | 97 V. DC | 0V. | 0V. | 4 V.DC | 5.2 V.DC | |
| 5 | 35Z5GT | 0V. | 117 V.AC | 109 V.AC | 0V. | 113 V.AC | 0V. | 83 V.AC | 112 V.DC | |
| 6 | 35Z5GT | 110 V.DC | 50 V.AC | 57 V.AC | 11 V.DC | 113 V.AC | 0V. | 83 V.AC | 110 V.DC | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0Ω | * | 1700Ω | 40KΩ | 225KΩ | 1700Ω | * | INF. | 4 MEG. |
| 2 | 1N5GT | 0Ω | * | 1800Ω | 1700Ω | INF. | INF. | * | INF. | 10 MEG. |
| 3 | 1H5GT | 0Ω | * | 1.5MEG. | 430KΩ | 925KΩ | 145Ω | * | INF. | 2.8 MEG. |
| 4 | 3Q5GT | 62Ω | * | 2400Ω | 1700Ω | 2.2MEG. | 0Ω | * | * | |
| 5 | 35Z5GT | INF. | 355Ω | 352Ω | INF. | 400Ω | INF. | 325Ω | 2000Ω | |
| 6 | 35Z5GT | 7KΩ | 300Ω | 297Ω | 160Ω | 400Ω | INF. | 325Ω | 1450Ω | |

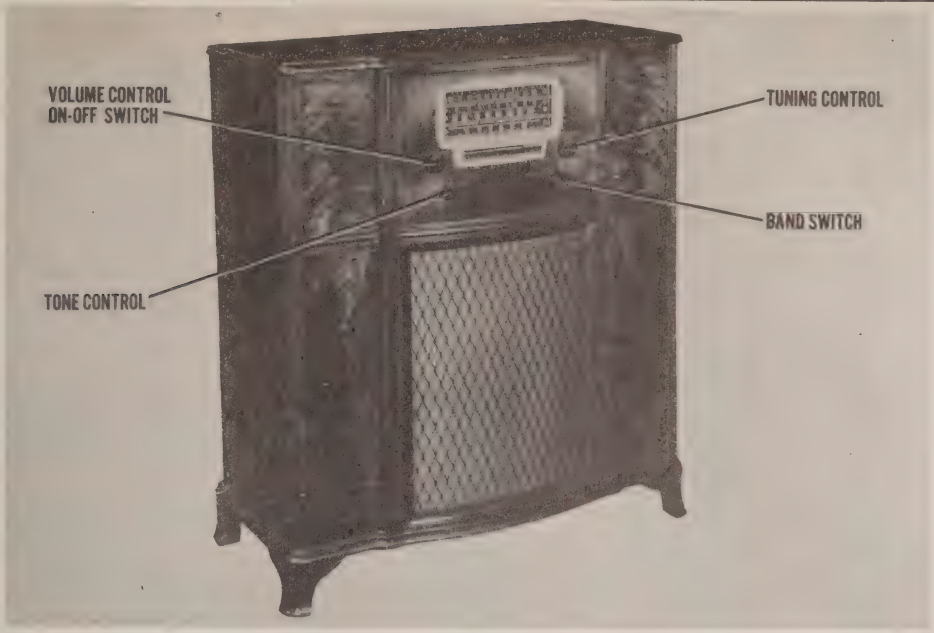
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-30

1. Use the 600KC signal with 400-cycle modulation connected as shown on schematic. (Use nearby frequency if local station interferes.)
2. For RF and IF measurements, connect negative terminal of 1½ Volt battery to AVC lead and the positive terminal to chassis.
3. Be sure radio is carefully tuned to signal generator frequency. (Use weak signal for sharper tuning.)

1. DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




STROMBERG-CARLSON MODEL 1121LW

| | |
|---|---|
| TRADE NAME | Stromberg-Carlson, No. 1121 (Chassis 112004) Series 10-11-12 |
| MANUFACTURER | Stromberg-Carlson Co., 100 Carlson Road, Rochester, N.Y. |
| TYPE SET | AC Operated AM-FM Superheterodyne Receiver - Self Contained Loop Antenna - Some Models have Self Contained Phono Equipment. See Identification Table Below. |
| TUBES (ELEVEN) | Types, 6SG7 RF Amp., 6SB7 Conv., 6SG7 1st IF Amp., 6SH7 2nd IF Amp., 6SH7 Limiter, 6H6 Discr., 6SQ7 Det.-AVC-AF, 6SC7 Driver & Inverter, (2) 6V6GT Power Output, 5U4G Rectifier. |
| POWER SUPPLY | 105-125 Volts AC |
| RATING | 1.1 Amp. @ 117 Volts AC |
| TUNING RANGE | -BROADCAST 540-1620KC SHORT WAVE 8.8-10.2MC, FM 42-50MC, 88-108MC |

IDENTIFICATION TABLE

| MODEL | CHASSIS | CABINET | SPEAKER | PHONOGRAPH EQUIPMENT |
|---|---|---|---|---|
| PFM | 112004 | 41654 | 33435 | 148001 |
| PFW | 112004 | 41653 | 33435 | 148001 |
| PGM | 112004 | 35777 | 33435 | 41612 |
| PGW | 112004 | 35985 | 33435 | 41612 |
| PLW | 112004 | 108015 | 33435 | 148001 |
| PLM | 112004 | 108014 | 33435 | 148001 |
| M1-O | 112004 | 39213 | 33435 | 41612 |
| PSM | 112004 | 108028 | 33435 | 41612 |
| M2-Y | 112004 | 106019 | 33435 | 41612 |
| M2-W | 112004 | 45207 | 33435 | 41612 |
| LW | 112004 | 47908 | 33435 | |
| HW | 112004 | 108020 | 155012 | |

STROMBERG-CARLSON
NO. 1121 SERIES 10-11-12

STROMBERG-CARLSON
NO. 1121 SERIES 10-11-12 PAGE 1

**HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana**

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA STROM.-CARLSON PART No. | REPLACEMENT DATA STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 6SJ7 | 6SJ7 | 6BK | |
| 2 | Converter | 6SA7 | 6SA7 | 6R | |
| 3 | 1st IF Amp. | 6SG7 | 6SG7 | 6BK | |
| 4 | 2nd IF Amp. | 6SH7 | 6SH7 | 6BK | |
| 5 | Limiter | 6SH7 | 6SH7 | 6BK | |
| 6 | Discriminator | 6H6 | 6H6 | 7Q | |
| 7 | Det.,AVC and 1st Audio | 6SQ7 | 6SQ7 | 8Q | |
| 8 | Driver& Inverter | 6SC7 | 6SC7 | 8S | |
| 9 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 10 | Power Output | 6V6GT | 6V6GT | 7AC | |
| 11 | Rectifier | 5U4G | 5U4G | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA STROMBERG-CARLSON PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 12A | 20 | 400 | 111002 | DY-2x40-450 | EL-240 | AF444J* | UP9BJ39 | FP238 | ■ Filter |
| B | 40 | 400 | | | | | | | ■ " |
| 13 | 1 | 200 | | S-4-1M | TC-10 | 484-1 | DT4W1 | TP422 | Filter Choke Resonating |
| 14A | 40 | 250 | 111003 | DY-2x40-450 | EL-245 | AF-44J4A* | UP4CJ3 | FP346 | ■ Filter |
| B | 20 | 25 | | | | | | | ■ Cath. bypass |
| 15 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Audio Coupling |
| 16 | .5 | 200 | 110414 | S-4-5 | TC-5 | 484-5 | DT4P5 | TP431 | Tone Compensation |
| 17 | .05 | 400 | 40632 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Audio Coupling |
| 18 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | " " |
| 19 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Tone Compensation |
| 20 | .02 | 600 | 25484 | S-6-02 | TC-12 | 684-02 | DT6S2 | TP412 | " " |
| 21 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Audio Coupling |
| 22 | .005 | 600 | 27760 | S-6-005 | TC-25 | 684-005 | DT6D5 | TP406 | " " |
| 23 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Filament Bypass |
| 24 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Limiter Plate Decoup. |
| 25 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Limiter Screen Bypass |
| 26 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | 2nd IF Plate Decoup. |
| 27 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | 2nd IF Screen Bypass |
| 28 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | 1st IF Plate Decoup. |
| 29 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | 1st IF Screen Bypass |
| 30 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | AVC Filter |
| 31 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | Conv. Plate Decoupling |
| 32 | .005 | 600 | 27760 | S-6-005 | TC-25 | 684-005 | DT6D5 | TP406 | Conv. Screen Bypass |
| 33 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | " " " |
| 34 | .01 | 600 | 25485 | S-6-01 | TC-11 | 684-01 | DT6S1 | TP410 | RF Plate Decoupling |
| 35 | 1000 | | 25487 | | | | | | Filament Bypass Cer. |
| 36 | 75 | 500 | | | 1FM-475 | 1467-000075 | | MC230 | Phono. Coupling |
| 37 | 500 | 500 | | M0.5-35 | 1FM-35 | 1466-0005 | 5W5T5 | MC245 | " " |
| 38 | 100 | 500 | 24559 | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Audio Plate Bypass |
| 39 | 100 | 500 | 24559 | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Invert. Plate Bypass |
| 40 | 1000 | 300 | 25487 | M0.3-21 | 1FM-21 | 1467-001 | 1W5D1 | MC255 | Disc. Cath. Bypass |
| 41 | 100 | | 110401 | | | | | | Limiter Screen Bypass |
| 42 | 1000 | 300 | 25487 | M0.3-21 | 1FM-21 | 1467-001 | 1W5D1 | MC255 | Limiter Grid |
| 43 | 100 | | 24559 | | | | | | Limiter Fil. Bypass Cer |
| 44 | 33 | | 110407 | | | | | | IF Coupling |
| 45 | 100 | 500 | 24559 | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | RF Bypass Diode |
| 46 | 100 | 500 | 24559 | M0.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | AF Bypass Diode |
| 47 | 100 | | 110401 | | | | | | IF Coupling Cer. |
| 48 | 100 | | 110401 | | | | | | " " " |
| 49 | 1000 | | 110408 | | | | | | Conv. Screen Bypass Cer |
| 50 | 100 | | 110401 | | | | | | Osc. Grid Capacitor Cer |
| 51 | 10 | | 110411 | | | | | | Fixed Trimmer Cer. |
| 52 | 375 | 500 | 110203 | | | | | | Fixed Padder |
| 53 | 47 | | 110402 | | | | | | RF Coupling Cer. |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA STROMBERG-CARLSON PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 54 | 5 | | 110413 | | | | | | Fixed Trimmer Cer. |
| 55 | 2.5 | | 110412 | | | | | | " " " |
| 56 | 1.0 | | 110401 | | | | | | RF Coupling Cer. |
| 57 | 1000 | | 110408 | | | | | | RF Screen Bypass Cer. |
| 58 | 100 | | 110401 | | | | | | RF Coupling Cer. |
| 59 | 10 | 50V | 110202 | MO.1-41 | MS-41 | 1468-00001 | 5W5Q1 | MC215 | Fixed Trimmer |

*Parallel sections to obtain desired capacity.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STROM.-CARLSON PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 60A | 1 Meg. | 1 | 145002 | TM240 | D13-137X | T-98 | Volume Control |
| B | Shaft | | Not Req. | SS-1 | A | Not Req. | Attach to 60A per instructions |
| C | Switch | | " " | M26 | 41 | SW-5 | " " " " " |
| 61A | 2.5 Meg | 1 | 145002 | | | M-37-Z | Tone Control |
| B | Shaft | | Not Req. | | | Not Req. | Attach to 61A per instructions |

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STROMBERG-CARLSON PART No. | REPLACEMENT DATA IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 62 | 1 Meg. | ½ | 28191 | BTS-1 Meg. | Br.-Blk.-Grn. RF Grid Load |
| 63 | 22KΩ | ½ | 28131 | BTS-22K | Red-Red-Or. RF Plate Load |
| 64 | 68KΩ | ½ | 28179 | BTS-68K | Blue-Gray-Or. RF Screen Dropping |
| 65 | 1000Ω | ½ | 28158 | BTS-1000 | Br.-Blk.-Red RF Plate Decoupling |
| 66 | 5600Ω | ½ | 28167 | BTS-5600 | Grn.-Blue-Red SW RF Coil Load - See Note 1 |
| 67 | 4700Ω | ½ | 149004 | BTS-4700 | Yl.-Vi.-Red BC RF Coil Load - See Note 1 |
| 68 | 1000Ω | ½ | 28158 | BTS-1000 | Br.-Blk.-Red BC Osc. Coil Load - See Note 1 |
| 69 | 33KΩ | ½ | 149006 | BTS-33K | Or.-Or.-Or.-Oscillator Grid |
| 70 | 1000Ω | 1 | 28158 | BTA-1000 | Br.-Blk.-Red Voltage Dropping |
| 71 | 1 Meg. | ½ | 28191 | BTS-1 Meg. | Br.-Blk.-Grn. 1st IF Grid Load |
| 72 | 33KΩ | ½ | 149006 | BTS-33K | Or.-Or.-Or. 1st IF Screen Dropping |
| 73 | 1000Ω | 1 | 28158 | BTA-1000 | Br.-Blk.-Red Voltage Dropping |
| 74 | 1 Meg. | ½ | 28191 | BTS-1 Meg. | Br.-Blk.-Grn. 2nd IF Grid |
| 75 | 33KΩ | ½ | 149006 | BTS-33K | Or.-Or.-Or. 2nd IF Screen Dropping |
| 76 | 100KΩ | ½ | 28006 | BTS-100K | Br.-Blk.-Yl. Diode Load |
| 77 | 1000Ω | ½ | 28158 | BTS-1000 | Br.-Blk.-Red 2nd IF Plate Decoupling |
| 78 | 100KΩ | ½ | 28006 | BTS-100K | Br.-Blk.-Yl. Diode RF Filter |
| 79 | 22KΩ | ½ | 28131 | BTS-22K | Red-Red-Or. Limiter Grid |
| 80 | 4700Ω | ½ | 149004 | BTS-4700 | Yl.-Vi.-Red Limiter Grid |
| 81 | 1 Meg. | ½ | 28191 | BTS-1 Meg. | Br.-Blk.-Grn. AVC Network |
| 82 | 1000Ω | 1 | 28158 | BTA-1000 | Br.-Blk.-Red Limiter Plate Decoupling |
| 83 | 220KΩ | ½ | 28183 | BTS-220K | Red-Red-Yl. Discriminator Diode Load |
| 84 | 220KΩ | ½ | 28183 | BTS-220K | Red-Red-Yl. Discriminator Diode Load |
| 85 | 11670Ω | 10 | | | Voltage Divider - See Note 2 |
| 86 | 5715Ω | 10 | | | bleeder |
| 87 | 1 Meg. | ½ | 28191 | BTS-1 Meg. | Br.-Blk.-Grn. Tone Compensation |
| 88 | 120KΩ | ½ | | BTS-120K | Br.-Red-Yl. Tone Compensation |
| 89 | 470KΩ | ½ | 28187 | BTS-470K | Yl.-Vi.-Yl. Series Television Input |
| 90 | 1 Meg. | ½ | 28191 | BTS-1 Meg. | Br.-Blk.-Grn. Audio Voltage Divider |
| 91 | 100KΩ | ½ | 28006 | BTS-100K | Br.-Blk.-Yl. Audio Voltage Divider |
| 92 | 10 Meg. | ½ | 28235 | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 93 | 100KΩ | ½ | 28006 | BTS-100K | Br.-Blk.-Yl. 1st AF Plate Load |
| 94 | 10KΩ | ½ | 28006 | BTS-100K | Br.-Blk.-Yl. Tone Compensation |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | STROMBERG-CARLSON PART No. | IRC PART No. | |
| 95 | 15KΩ | ½ | 28172 | BTS-15K | Br.-Grn.-Or. Tone Compensation |
| 96 | 2700Ω | ½ | 28183 | BTS-2700 | Red-Vi.-Red Driver Cathode |
| 97 | 270KΩ | ½ | 28184 | BTS-270K | Red-Vi.-Yl. Driver Plate Load |
| 98 | 270KΩ | ½ | 28184 | BTS-270K | Red-Vi.-Yl. Inverter Plate Load |
| 99 | 1.5 Meg. | ½ | 28193 | BTS-1.5 Meg. | Br.-Grn.-Grn. Feedback |
| 100 | 470KΩ | ½ | 28187 | BTS-470KΩ | Yl.-Vi.-Yl. Output Grid |
| 101 | 390KΩ | ½ | 28186 | BTS-390K | Or.-White-Yl. Output Grid |
| 102 | 68KΩ | ½ | 28179 | BTS-68K | Blue-Gray-Or. Inverter Grid |
| 103 | 330Ω | 1 | 69892 | BW-1-330 | Or.-Or.-Br. Output Cathode |
| 104 | 1000Ω | ½ | 28158 | BTS-1000 | Br.-blk.-Red Tone Compensation |
| 130 | 200Ω | 10 | 149008 | AB-200 | Voltage Dropping - See Note 3 |

Note 1 - Not used in all models.
Note 2 - ABA-10,000 - Set slider at center and ABA-1250 - Set slider 750Ω from on end.
Note 3 - Used in model 1121HW Only

## FILTER CHOKE

| ITEM NO. | RATINGS | | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D.C. RESISTANCE | INDUCTANCE (0 CURRENT 1000~) | STROMBERG-CARLSON PART NO. | STANCOR PART NO. | THORDARSON PART NO. | |
| 105 | .150A | 115Ω | 3 Henries | 161203 | C-2309# | T20C54# | #Drill new mounting holes. |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | STROMBERG-CARL. PART No. | STANCOR PART No. | THORDAR'N PART No. | |
| 106 | 117 VAC @ 1.1A | 720 VCT @ .150A | 5.1 VAC 2.7A | 6.5 VAC 3.7A | 161204 | P-6314 | T22R07 | |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | STROM.-CARL. PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 107 | 12000Ω CT | 4.5Ω | 330Ω CT | .2Ω | 161401 | A-3831 | T22S47# | | #Drill one new mounting hole. |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | STROM.-CARL. PART No. | JENSEN PART No. | | |
| 108A | FIELD RES. 950Ω | VC IMP. 3.5Ω | 33435 | ST-4701 Mod. G12-RS | | †Shunt field coil with 8000Ω 5W resistor. Field coil part #33437. |
| 109 | CONE DIA. 11-5/8" | VC DIA. 7/8" | 33438 | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | |
| 108B | FIELD RES. 800Ω | VC IMP. 3.5Ω | 155012 | | | Used in Model HW |

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | STROMBERG-CARLSON PART No. | MEISSNER PART No. | |
| 110 | AM Loop | 0Ω | | | | |
| 111 | FM Loop | | | | | |
| 112A | BC Ant. Coil | | 4.3Ω | 114005 | | Items 112A, 112B on same form |
| 112B | SW Ant. Coil | 0Ω | .5Ω | 114006 | | |
| 113 | FM Ant. Pri. | 0Ω | | | | |
| 114 | FM Ant. Coil 2 | | 0Ω | | | Items 114, 115 on same form |
| 115 | FM Ant. Coil 1 | | 0Ω | | | |
| 116A | BC RF Coil | | 3.5Ω | 114003 | | Items 116A, 116B on same form |
| 116B | SW RF Coil | | .4Ω | 114003 | | |
| 117 | FM RF Coil 2 | | 0Ω | | | |
| 118 | FM RF Coil 1 | | 0Ω | | | |
| 119A | BC Osc. Coil | | 5.2Ω | 114004 | | Items 119A, 119B on same form |
| 119B | SW Osc. Coil | | .4Ω | 114004 | | |
| 120 | FM Osc. Coil 2 | | 0Ω | | | |
| 121 | FM Osc. Coil 1 | | 0Ω | | | |
| 122A | 1st AM IF | 6Ω | 6.5Ω | 161202 | | Items 122A, 122B in same can |
| 122B | 1st FM IF | .5Ω | .5Ω | 161202 | | |
| 123A | 2nd AM IF | 6Ω | 6Ω | 161200 | | Items 123A, 123B in same can |
| 123B | 2nd FM IF | .5Ω | .5Ω | 161200 | | |
| 124A | 3rd AM IF | 6Ω | 6Ω | 161201 | | Items 124A, 124B in same can |
| 124B | FM LimiterIF | .5Ω | .5Ω | 161201 | | |
| 125 | FM Disc. IF | .5Ω | .3Ω 2Ω | 161205 | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | STROMBERG-CARLSON PART No. | | |
| 126 | Bayonet | 6-8 | 0.25 | Blue | | | Type 44 |
| 127 | " | 6-8 | 0.25 | " | | | " " |

## MISCELLANEOUS

| ITEM No. | PART NAME | STROMBERG-CARLSON PART No. | NOTES |
|---|---|---|---|
| 128 | RF Assembly | 112005 | Includes Band Sw., Var. Cap., All RF Coils |
| 129 | 10Ω Resistor | | Not used in all models. |
| | RF Trimmers | 11006 | A24, A25, A27, A28, A29 |
| A26 | RF Trimmer | 110007 | |
| | Dial Scale | 122006 | |

SERIES 10

Uses matching phono network for 80870 pickup cartridge.

SERIES 11

Uses matching phono network for 80484 pickup cartridge.

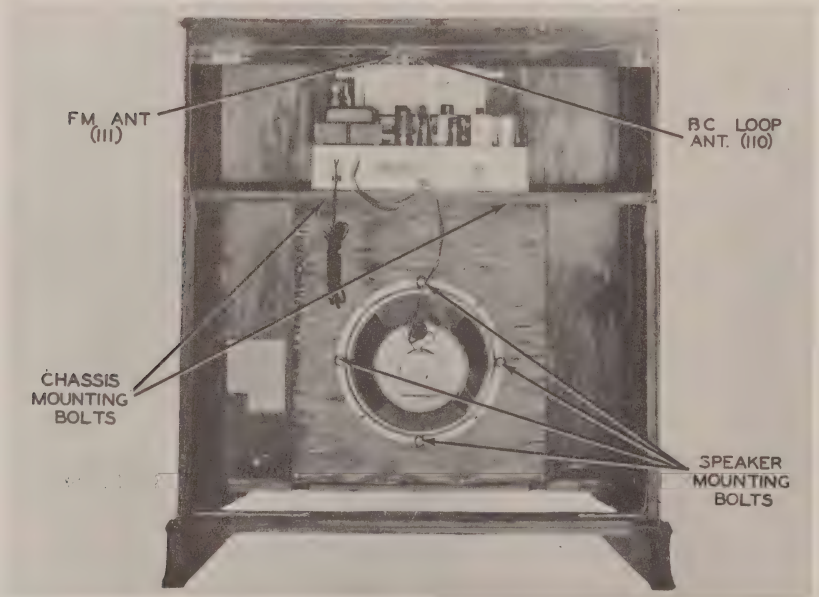
SERIES 12

1. (82) changed from 1000Ω to 100K.
2. Limiter screen dropping resistor added.
3. Leads from (85Ω), (85Ω) removed and made common with lead from (85Ω).
4. Terminal #4 of wire recorder socket grounded. Center tap of the wire recorder winding of the power transformer removed from ground and connect to catnodes of the 6V6GT tubes.

## ALIGNMENT INSTRUCTIONS

To set dial pointer turn variable fully closed and set pointer at the center of the 2 in the number 201 of FM band (1). Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use extreme care while aligning IF cores. They are made of powdered iron and are very fragile. Use a vacuum tube voltmeter as an output meter for all FM adjustments. When adjusting FM (2) band, connect high side of signal generator to left dipole terminal through 39 ohms, connect low side to right dipole terminal through 39 ohms and connect low side of signal generator to chassis. For FM (1) band reverse connection of 39 ohm resistors on dipole terminals. Keep low side of signal generator connected to chassis. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| Direct | High side to pin #8 (signal grid) of 6SB7. Low side to chassis. | 455KC | BC | 600KC | Across voice coil | A1,A2, A3,A4, A5,A6. | Adjust for maximum output. |
| Direct | " | 10.7MC Modulation off | FM-2 (Fourth pos. | 21 on 2nd FM band. | VTVM across limiter filter resistor (3C) | A7,A8, A9,A10, A11,A12 | Adjust for maximum output with minimum input from signal generator. |
| Direct | High side to pin #4 of 2nd IF tube 6SH7 (4). Low side to chassis. | " | " | " | VTVM across disc. diode load resistor (6A) | A13 | " |
| Direct | " | " | " | " | VTVM from pin #3 of disc 6H6 (6) to chassis. | A14 | Adjust for zero output. Swing signal generator 75KC above and 75KC below IF freq. and record both readings. If not equal, repeat last two steps and check again. It may be necessary to adjust A14 slightly to get these readings equal. This adjustment is very critical as mis-adjustment will cause distortion of FM reception. |
| 200 MMF. | High side to ant. term. (With loop connected). Low side to chassis. | 1500KC (Modulation on) | BC (Second position | 1500kC | across voice coil | A15,A16 A17. | Adjust for maximum output in order given. |
| 200 MMF. | " | 600KC | " | 600KC | " | A18,A19 A20 | " |
| Repeat last two steps until no further increase can be obtained. | | | | | | | |
| 400 ohms | High side to ant. term. (Loop connected). Low side to chassis. | 9.5MC | SW (First position | 9.5MC | " | A21,A22 A23 | " |
| 39 ohms (Disconnect dipole) | See pre-alignment instructions | 46.1MC | FM(2) (Fourth position | 61(FM 2) | VTVM a across limiter filter resistor 8G) | A24,A25 A26 | " |
| " | " | 100.1MC | FM(1) (Third position | 261(FM 1) | " | A27,A28, A29 | " |

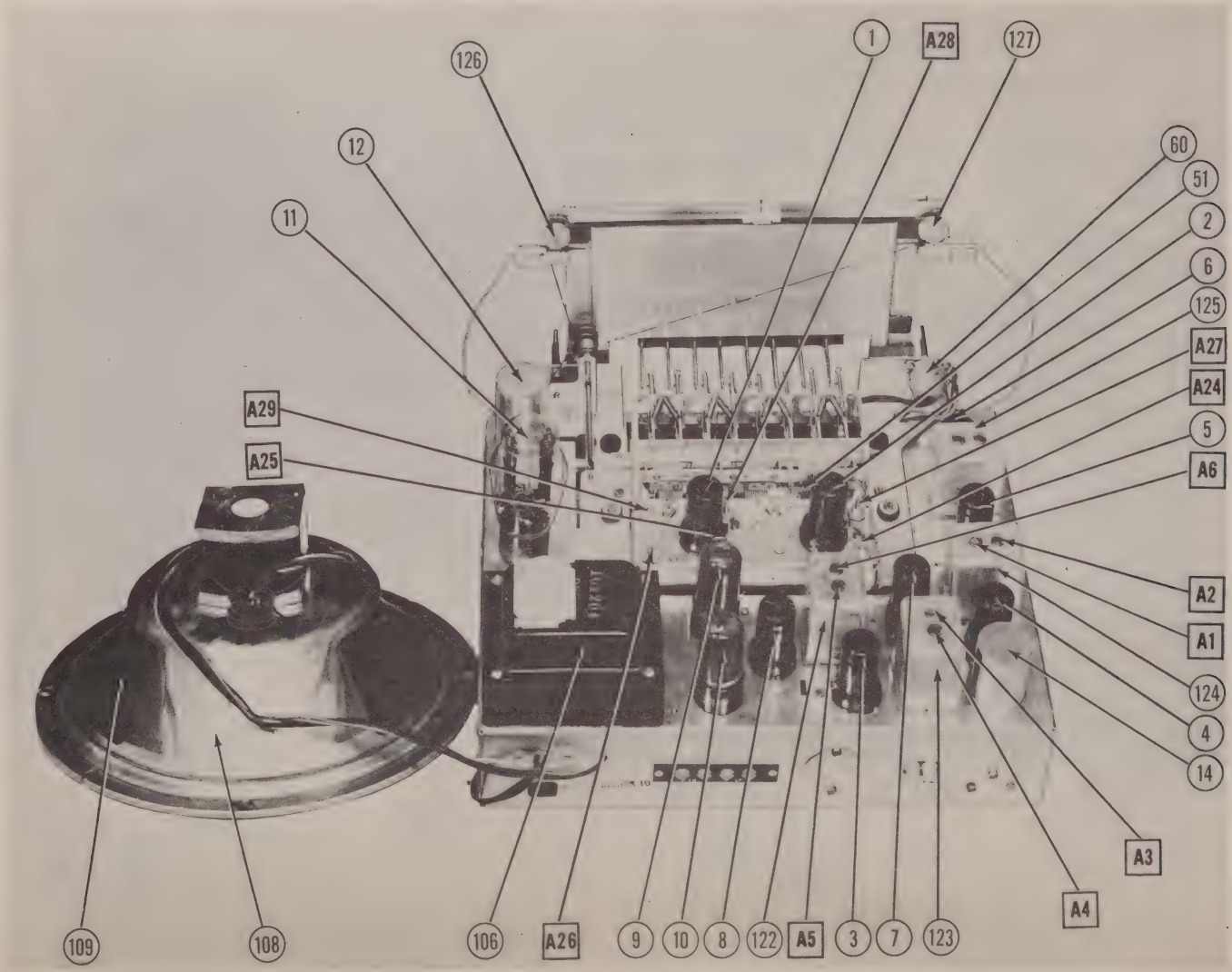



## DISASSEMBLY INSTRUCTIONS

1. Remove on-off switch-volume control, tone control, band switch, and tuning control knobs.
2. Loosen four screws on terminal board holding FM Ant. and AM Loop. Remove leads.
3. Take out four bolts holding chassis. Remove chassis.
4. Unscrew four bolts holding speaker. Take off washers, lock-washer and rubber grommet. Remove speaker.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

# CHASSIS—TOP VIEW



# CHASSIS—BOTTOM VIEW

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SG7 | 0V. | 6.5V.AC | 0V. | -.5V.DC | 0V. | 57V.DC | 0V. | 77V.DC |
| 2 | 6SB7Y | 0V. | 6.5V.AC | 238V.DC | 112V.DC | -1.3V.DC | 0V. | 0V. | 0V. |
| 3 | 6SG7 | 0V. | 6.5V.AC | 0V. | -.45V.DC | 0V. | 103V.DC | 0V. | 217V.DC |
| 4 | 6SH7 | 0V. | 6.5V.AC | 0V. | -.5V.DC | 0V. | 135V.DC | 0V. | 232V.DC |
| 5 | 6SH7 | 0V. | 6.5V.AC | 0V. | -.5V.DC | 0V. | 14V.DC | 0V. | 21V.DC |
| 6 | 6H6 | 0V. | 6.5V.AC | -3V.DC | 0V. | -.35V.DC | 0V. | 0V. | 0V. |
| 7 | 6SQ7 | 0V. | -.4V.DC | 0V. | -.2V.DC | -3V.DC | 152V.DC | 0V. | 6.5V.AC |
| 8 | 6SC7 | 0V. | 158V.DC | 0V. | 0V. | 163V.DC | 2V.DC | 0V. | 6.5V.AC |
| 9 | 6V6GT | 0V. | 6.5V.AC | 360V.DC | 252V.DC | 0V. | 0V. | 0V. | 16.5V.DC |
| 10 | 6V6GT | 0V. | 6.5V.AC | 360V.DC | 252V.DC | 0V. | 0V. | 0V. | 16.5V.DC |
| 11 | 5U4 | 0V. | 380V.DC | 252V.DC | 360V.AC | 0V. | 360V.AC | 0V. | 380V.DC |

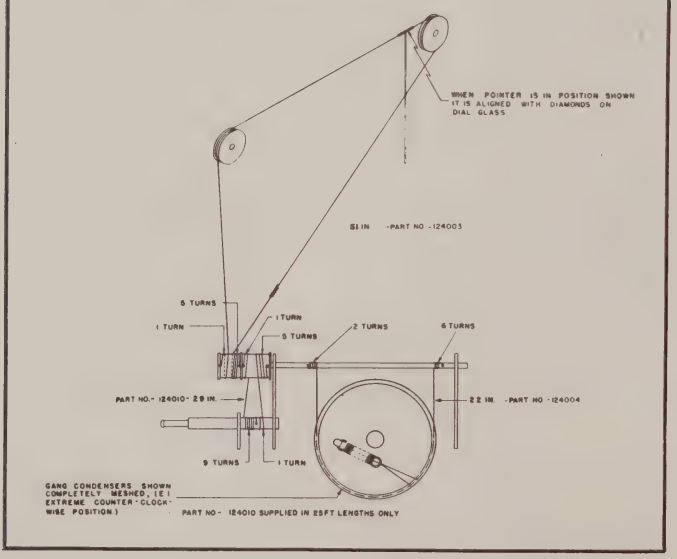
RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6SG7 | 0Ω | .1Ω | 0Ω | 2.2MEG. | 0Ω | 73KΩ | 0Ω | 28KΩ |
| 2 | 6SB7Y | 0Ω | .1Ω | 6KΩ | 5KΩ | 31KΩ | .4Ω | 0Ω | 3.3Ω |
| 3 | 6SG7 | 0Ω | .1Ω | 0Ω | 2.3MEG. | 0Ω | 39KΩ | 0Ω | 6KΩ |
| 4 | 6SH7 | 0Ω | .1Ω | 0Ω | 1MEG. | 0Ω | 38KΩ | 0Ω | 6KΩ |
| 5 | 6SH7 | 0Ω | .1Ω | 0Ω | 23KΩ | 0Ω | 680Ω | 0Ω | 2KΩ |
| 6 | 6H6 | 0Ω | .1Ω | 205KΩ | 0Ω | 205KΩ | INF. | 0Ω | 410KΩ |
| 7 | 6SQ7 | 0Ω | 10 MEG. | 0Ω | 185KΩ | 1.2MEG. | 105KΩ | 0Ω | .1Ω |
| 8 | 6SC7 | 0Ω | 275KΩ | 65KΩ | 14KΩ | 275KΩ | 2.5KΩ | 0Ω | .1Ω |
| 9 | 6V6GT | 0Ω | .1Ω | 6KΩ | 5KΩ | 410KΩ | INF. | 0Ω | 300Ω |
| 10 | 6V6GT | 0Ω | .1Ω | 6KΩ | 5KΩ | 490KΩ | INF. | 0Ω | 300Ω |
| 11 | 5U4 | 0Ω | 6KΩ | 5KΩ | 60Ω | INF. | 65Ω | 0Ω | 6KΩ |

## RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

## STRINGING CHART


WHEN POINTER IS IN POSITION SHOWN IT IS ALIGNED WITH DIAMONDS ON DIAL GLASS
51 IN. -PART NO.-124003
5 TURNS
1 TURN
1 TURN
9 TURNS
2 TURNS
6 TURNS
PART NO.- 124010- 28 IN.
22 IN. -PART NO.-124004
9 TURNS
1 TURN
GANG CONDENSERS SHOWN COMPLETELY MESHED, (E.) EXTREME COUNTER-CLOCK-WISE POSITION.)
PART NO.- 124010 SUPPLIED IN 25FT LENGTHS ONLY

PUSHBUTTON ADJUSTMENTS

1. Remove push button from shaft.
2. Loosen screw on pushbutton shaft.
3. Tune in desired station carefully. Hold tuning knob and push in push button shaft firmly. Holding shaft in, rock tuning control for maximum output.
4. Release shaft and tighten screw firmly.
5. Follow same procedure for remaining buttons.

TRUETONE MODEL D2616

| | |
|---|---|
| TRADE NAME | Truetone Model D2616 (Factory Model 6D117) |
| SUPPLIER | Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo. |
| TYPE SET | AC-DC Superheterodyne Receiver with Pushbuttons - Self Contained Loop Ant. |
| TUBES (SIX) | Types 12SK7 RF Amp., 12SA7 Converter, 12SF7 IF Amp-Det-AVC, 12SJ7 1st Audio, 35L6GT Power Output, 35Z5GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC-DC RATING .230 Amp. @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 530-1600KC |

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at last reference mark at the left end of the dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to stator of antenna section of variable. Low side to B-. | 455KC | Variable fully open. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| .1 MFD. | " | 1600KC | " | " | A5 | " |
| 200MMF. | High side to ext ant. Low side to chassis. | 1400KC | Tune for maximum output. | " | A6 | " |

PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow to warm up for at least five minutes.
2. Insert call letters of the desired stations in pushbuttons.
3. Rotate tuning control fully counter-clockwise.
4. Loosen pushbutton locking screw which can be reached through hole in bottom of cabinet.
5. Press first pushbutton down all the way. Hold the button down and carefully tune in the desired station. Release pushbutton.
6. Follow this procedure for each of the remaining buttons, adjusting each one to the desired station.
7. Rotate tuning control fully counter-clockwise. Tighten pushbutton locking screw firmly.

**HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana**

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: TRUETONE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | RF Amp. | 12SK7 | 12SK7 | 8N | |
| 2 | Converter | 12SA7 | 12SA7 | 8R | |
| 3 | IF Amp.-Det.-AVC | 12SF7 | 12SF7 | 7AL | |
| 4 | 1st Audio | 12SJ7 | 12SJ7 | 8N | |
| 5 | Power Output | 35L6GT | 35L6GT | 7AC | |
| 6 | Rectifier | 35Z5GT | 35Z5GT | 6AL | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: TRUETONE PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 40 | 150 | A-8C-10077 | DY-3X20-150 | EL-224 | AF86D | UP4CJ1 | | ■ Filter |
| B | 20 | 150 | | | | | | | ▲ " |
| C | 20 | 150 | | M-20-150 | | PRS150-20 | | | " |
| 8 | .1 | 400 | C-8D-10760 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Line Filter |
| 9 | .1 | 400 | C-8D-10760 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Line Isolation |
| 10 | .05 | 200 | C-8D-10770 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Voice Coil Ground |
| 11 | .01 | 400 | C-8D-10761 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | 35L6 Plate Bypass |
| 12 | .005 | 600 | C-8D-10935 | S-6-005 | TC-25 | 684-005 | DT6D5 | TP408 | Audio Coupling |
| 13 | .025 | 400 | C-8D-10997 | S-4-02 | TC-12 | 484-025 | DT4S25 | TP451 | Feedback |
| 14 | .25 | 200 | C-8D-10775 | S-4-25 | TC-2 | 484-.25 | DT4P25 | TP430 | " |
| 15 | .004 | 600 | C-8D-10768 | S-6-004 | TC-24 | 684-004 | DT6D4 | TP407 | Audio Coupling |
| 16 | .05 | 200 | C-8D-10770 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 17 | .1 | 200 | C-8D-10771 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | RF Bypass Pwr. Supp. |
| 18 | .002 | 600 | C-8D-10778 | S-6-002 | TC-22 | 684-002 | DT6D2 | TP405 | Ant. Coupling |
| 19 | 220 | 500 | C-8F3-10 | MO.5-32 | 1FM-32 | 1468-0002 | SWST2 | MC237 | Audio Plate Bypass |
| 20 | 100 | 500 | C-8F3-8 | MO.5-31 | 1FM-31 | 1468-0001 | SWST1 | MC235 | IF bypass Vol. Cont. |
| 21 | 220 | 500 | C-8F3-10 | MO.5-32 | 1FM-32 | 1468-0002 | SWST2 | MC237 | IF Bypass Diode |
| 22 | 100 | 500 | C-8F3-8 | MO.5-31 | 1FM-31 | 1468-0001 | SWST1 | MC235 | Osc. Grid Capacitor |
| 23 | 100 | 500 | C-8F3-8 | MO.5-31 | 1FM-31 | 1468-0001 | SWST1 | MC235 | RF Coupling |
| 24 | 100 | 500 | C-8F3-8 | MO.5-31 | 1FM-31 | 1468-0001 | SWST1 | MC235 | " " |

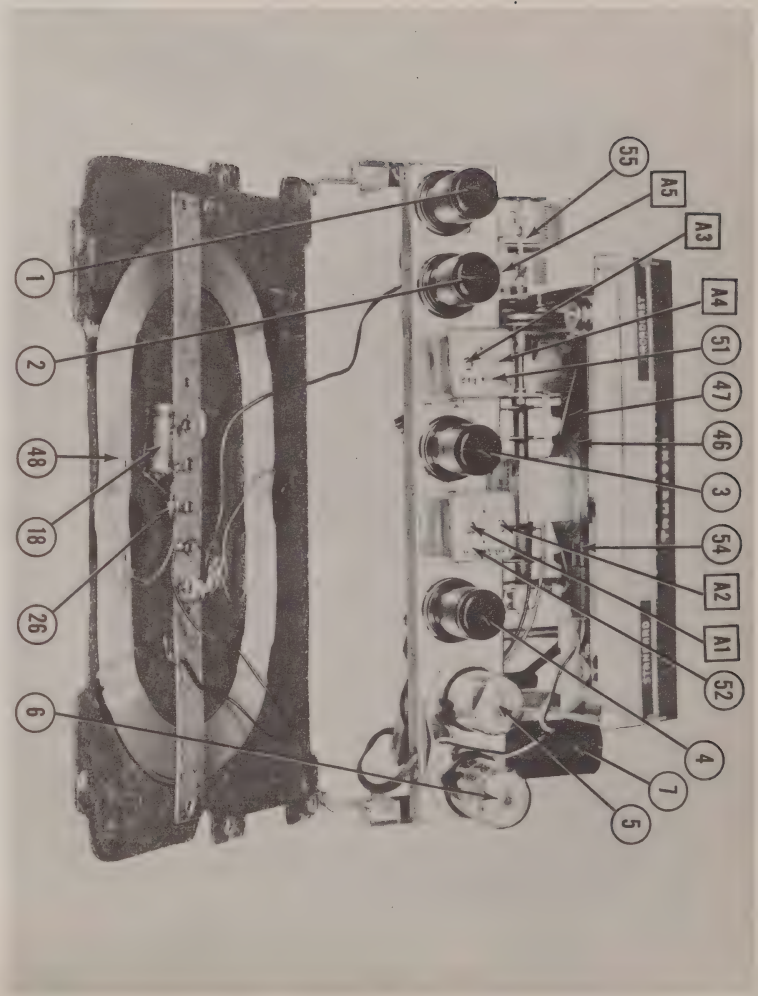
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TRUETONE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 25A | 1 Meg. | 1 | A-10A-10342 | UM-161 | D13-137 | | Volume Control |
| B | Shaft | | Not Req. | SS25 | E | | Attach to 25A per instructions |
| C | Switch | | " " | M26 | 41 | | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TRUETONE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 26 | 1000Ω | ½ | C-9B1-62 | BTS-1000 | Br.-Blk.-Red Antenna Load |
| 27 | 4700Ω | ½ | C-9B1-70 | BTS-4700 | Yl.-Vi.-Red Plate Load |
| 28 | 33KΩ | ½ | C-9B1-80 | BTS-33K | Or.-Or.-Or. Converter Grid |
| 29 | 22KΩ | ½ | C-9B1-78 | BTS-22K | Red-Red-Or. Oscillator Grid |
| 30 | 3.3 Meg. | ½ | C-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 31 | 1500Ω | ½ | C-9B1-64 | BTS-1500 | Br.-Grn.-Red 1st AF Cathode |
| 32 | 47KΩ | ½ | C-9B1-82 | BTS-47K | Yl.-Vi.-Or. Diode Filter |
| 33 | 10 Meg. | ½ | C-9B1-37 | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 34 | 33KΩ | ½ | C-9B1-80 | BTS-33K | Or.-Or.-Or. Feedback |
| 35 | 1.5 Meg. | ½ | C-9B1-32 | BTS-1.5 Meg. | Br.-Grn.Grn. 1st AF Screen Dropping |
| 36 | 270KΩ | ½ | C-9B1-91 | BTS-270K | Red-Vi.-Yl. " " Plate Load |
| 37 | 8200Ω | ½ | C-9B1-73 | BTS-8200 | Gray-Red-Red Feedback |
| 38 | 180Ω | ½ | C-9B1-53 | BW-½-180 | Br.-Gray-Br. Output Cathode |
| 39 | 470KΩ | ½ | C-9B1-94 | BTS-470K | Yl.-Vi.-Yl. " Grid |
| 40 | 22Ω | 2 | C-9B1-3 | BW-2-22 | Red-Red-Blk. Rectifier Ballast |
| 41 | 1200Ω | 1 | C-9B2-63 | BTA-1200 | Br.-Red-Red Filter |
| 42 | 1000Ω | 1 | C-9B2-62 | BTA-1000 | Br.-Blk.-Red " |
| 43 | 220KΩ | ½ | C-9B1-90 | BTS-220K | Red-Red-Yl. Line Isolation |
| 44 | 33Ω | 1 | C-9B2-44 | BT-1-33 | Or.-Or.-Blk. " Dropping |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | TRUETONE PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 45 | 4100Ω | 4Ω | 275Ω | .5Ω | A-12C-10623 | A-3856 | T22S46 | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | TRUETONE PART No. | JENSEN PART No. | | |
| | FIELD | VC IMP | | | | |
| 46 | PM | 4Ω | A-18A-10647 | | | |
| | CONE DIa. | VC DIA. | | | | |
| 47 | 4"X6" | ½" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

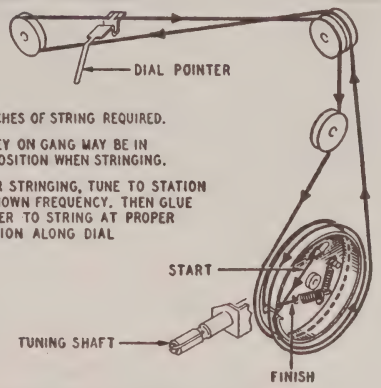
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | TRUETONE PART No. | MEISSNER PART No. | |
| 48 | Loop Ant. | | 1.5Ω | C-20I-10908 | | |
| 49 | RF Ch Choke | 5.8Ω | | A-16A-10792 | 19-4551 | |
| 50 | Osc. Coil | 1Ω | 4Ω | A-13D-10661 | 14-1040 | |
| 51 | Input IF | 33Ω | 32.5Ω | B-13B-10091 | 16-6658 | |
| 52 | Output IF | 25Ω | 25Ω | B-13B-10794 | 16-6660 | |
| 53 | RF Choke | 0Ω | | A-16A-12161 | | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | TRUETONE PART No. | | |
| 54 | Bayonet | 6-8 | 0.15 | Brown | A-46-10793 | | Type 47 |

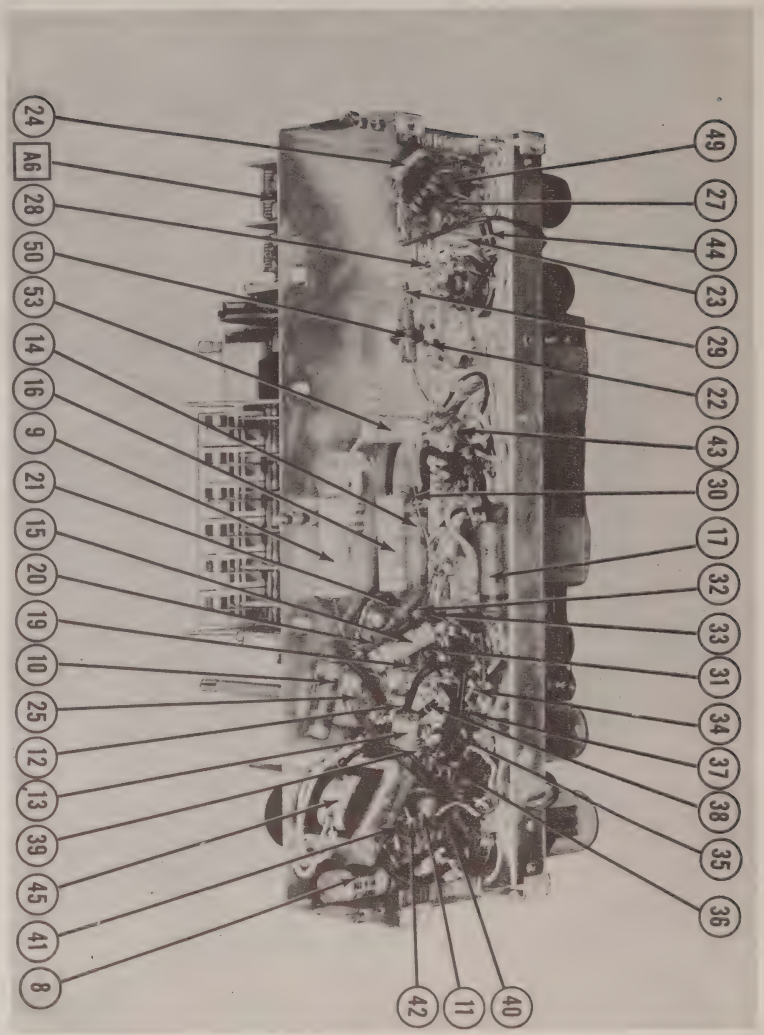
## MISCELLANEOUS

| ITEM No. | PART NAME | TRUETONE PART No. | NOTES |
|---|---|---|---|
| 55 | 2-Gang Var. Cap. | B-8A-10827 | Ant. & Osc. Trimmers Included |
| | Dial Scale | B-6D-10650 | |
| | Dial Pointer | A-2G-10639 | |


DIAL POINTER
1 60 INCHES OF STRING REQUIRED.
2 PULLEY ON GANG MAY BE IN ANY POSITION WHEN STRINGING.
3 AFTER STRINGING, TUNE TO STATION OF KNOWN FREQUENCY. THEN GLUE POINTER TO STRING AT PROPER POSITION ALONG DIAL
START
TUNING SHAFT
FINISH

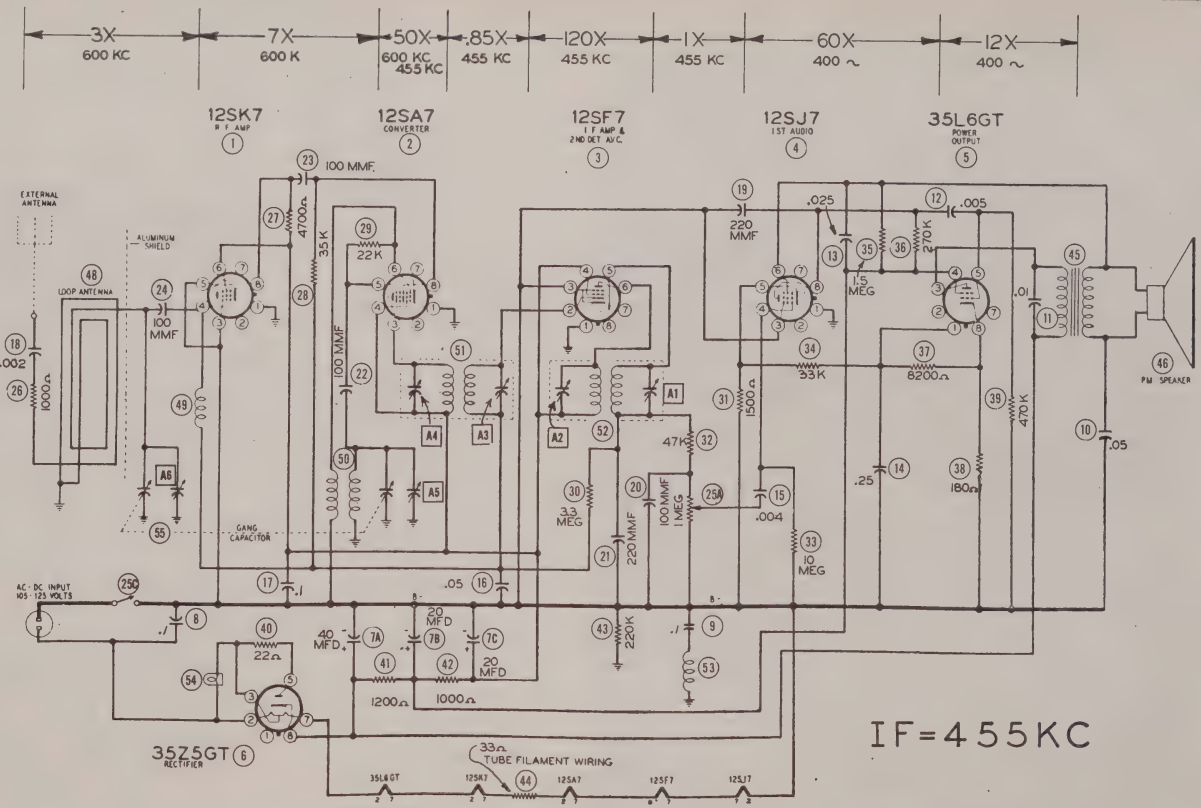
Replacing Dial Pointer Drive Cord

## CHASSIS—BOTTOM VIEW






TRUETONE MODEL D2616




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SK7 | -6V.DC | 50V.AC | 0V. | -6V.DC | 0V. | 62V.DC | 39V.AC | 32V.DC |
| 2 | 12SA7 | -6V.DC | 34V.AC | 62V.DC | 62V.DC | -1.35V.DC | 0V. | 24V.AC | -.45V.DC |
| 3 | 12SF7 | -6V.DC | -6V.DC | 0V. | 62V.DC | -25V.DC | 62V.DC | 12V.AC | 24V.AC |
| 4 | 12SJ7 | -6V.DC | 0V. | 0V. | -2V.DC | .55V.DC | 14V.DC | 12V.AC | 30V.DC |
| 5 | 35L6GT | 42V.DC | 87V.AC | 112V.DC | 87V.DC | 0V. | 0V. | 50VAC | 5.2V.DC |
| 6 | 35Z5GT | 0V. | 117V.AC | 113V.AC | 0V. | 112V.AC | 0V. | 87 V.AC | 121V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SK7 | 205KΩ | 72Ω | 0Ω | 4.5MEG. | 0Ω | 75KΩ | 62Ω | 80KΩ |
| 2 | 12SA7 | 205KΩ | 31Ω | 75KΩ | 75KΩ | 19KΩ | .3Ω | 22Ω | 4.5MEG. |
| 3 | 12SF7 | 205KΩ | 4.5MEG. | 0Ω | 75KΩ | 1.1MEG. | 75KΩ | 11Ω | 22Ω |
| 4 | 12SJ7 | 205KΩ | 0Ω | 0Ω | 10MEG. | 1300Ω | 1.5MEG. | 11Ω | 345KΩ |
| 5 | 35L6GT | 6.4KΩ | 102Ω | 75KΩ | 75KΩ | 430KΩ | 0Ω | 72Ω | 160Ω |
| 6 | 35Z5GT | INF. | 125Ω | 122Ω | INF. | 142Ω | INF. | 102Ω | 75KΩ |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-32

**The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.**

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TRUETONE MODEL D3619

| | |
|---|---|
| TRADE NAME | Truetone Model D3619 (Factory Model 5P110) |
| SUPPLIER | Western Auto Supply Co., 2107 Grand Ave., Kansas City, Missouri |
| TYPE SET | Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna |
| TUBES (FIVE) | Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC-DC or 7½ Volt "A" Battery and 90 Volt "B" Battery in Pack Form (Wizard Type B6460 or B6470 or equiv.) |
| TUNING RANGE—BROADCAST | 530-1650KC RATING,245 A. @ 117V AC - 50MA @ 7½ V DC & 11 MA @ 90V DC |

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at last reference mark at right end of dial. Use battery power whenever possible during alignment. However if ac power is used, connect capacitor in series with the low side of the signal generator and chassis. The IF and Osc. adjustments may be made without connecting the loop by substituting a 1 Meg. resistor across the loop leads. When adjusting A6 have the chassis and loop mounted in the cabinet. A6 may be reached through a hole in the side of the cabinet. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|
| .1 MFD. | High side to grid cap of 1A7. Low side to chassis. | 455KC | High freq.end. (Variable fully open) | Across voic coil | A1,A2, A3,A4. | Adjust for maximum output. If a-c power is used without isolation trans. reduce dummy ant. to .001 MFD. to reduce hum modulation. |
| .1 MFD. | " | 1650KC | " | " | A5 | " |
| 200 MMF. | High side to ext. ant. clip. Low side to chassis. | 1400KC | Tune for maximum output. | " | A6 | Adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: TRUETONE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 1A7GT | 1A7GT | 7Z | |
| 2 | IF Amp. | 1N5GT | 1N5GT | 5Y | |
| 3 | Det.-AVC-AF | 1H5GT | 1H5GT | 5Z | |
| 4 | Power Output | 3Q5GT | 3Q5GT | 7AP | |
| 5 | Rectifier | 3525GT | 3525GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: TRUETONE PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 6A | 40 | 150 | 119123 | DY-4191 | EL-340 | AF388D | UP7DJ19T | | ▲ Filter |
| B | 40 | 150 | | | | | | | ■ " |
| C | 200 | 10 | | DGM-250-12 | UHC-212 | PRS25-100+ | BRH1225 | | Filament Bypass |
| D | 20 | 50 | | | | PRS25-100+ | | | ▲ Filament Bypass |
| 7 | .05 | 400 | 10013 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Filter |
| 8 | .002 | 600 | 10025 | S-6-002 | TC-22 | 684-002 | DT6D2 | TP405 | 3Q5 Plate Bypass |
| 9 | .01 | 120 | 100127 | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 10 | .1 | 120 | 100133 | S-4-1 | TC-1 | 484-.1 | DT4P1 | TP428 | Filament Bypass |
| 11 | .006 | 120 | 100134 | S-6-006 | TC-26 | 484-006 | DT6D6 | TP409 | Audio Coupling |
| 12 | .01 | 120 | 100127 | S-4-01 | TC-11 | 464-01 | DT4S1 | TP421 | IF Grid Bypass |
| 13 | .25 | 120 | 100135 | S-4-25 | TC-2 | 484-.25 | DT4P25 | TP430 | Pwr. Supp. Bypass |
| 14 | .05 | 120 | 100128 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Conv. Screen Bypass |
| 15 | .05 | 200 | 1009 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | AVC Filter |
| 16 | 100 | 500 | 1295 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Audio Plate Bypass |
| 17 | 100 | 500 | 1295 | MO.5-31 | 1FM-31 | 1468-0001 | 5W5T1 | MC235 | Osc. Grid Bypass |
| 18 | 10 | | | | | | | | Fixed Trimmer Cer.* |
| 19 | 5 | | | | | | | | " " " * |

*Not used in all models.
†Bypass not used.
+Parallel for desired capacity.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TRUETONE PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 20A | 1 Meg. | 1 | 101252 | MK402 | D13-137 | AM-63-2 | Volume Control |
| B | Shaft | | Not Req. | Not Req. | E | KSS-3 | Attach to 20A per instructions |
| C | Switch | | " " | M27 | 42 | SW-A2 | " " " " " |

## RESISTORS

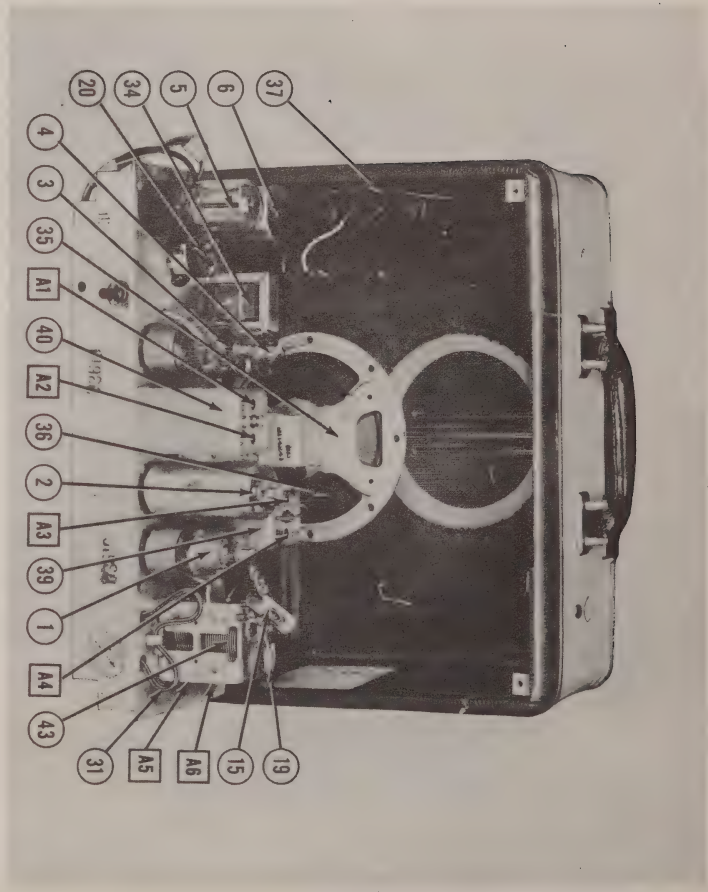
| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: TRUETONE PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 21 | 220KΩ | ½ | C-9B1-27 | BTS-220K | Red-Red-Yl. Oscillator Grid |
| 22 | 2700Ω | ½ | C-9B1-67 | BTS-2700 | Red-Vi.-Red Oscillator Plate |
| 23 | 68KΩ | ½ | C-9B1-84 | BTS-68K | Blue-Gray-Or. Converter Screen Dropping |
| 24 | 15 Meg. | ½ | C-9B1-302 | BTS-15 Meg. | Br.-Grn.-Blue IF Grid |
| 25 | 390Ω | ½ | C-9B1-57 | BW-½-390 | Or.-White-Br. Filament String |
| 26 | 3.3 Meg. | ½ | C-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. AVC Network |
| 27 | 10 Meg. | ½ | C-9B1-37 | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 28 | 1 Meg. | ½ | C-9B1-31 | BTS-1 Meg. | Br.-Blk.-Grn. 1st AF Plate Load |
| 29 | 3.3 Meg. | ½ | C-9B1-34 | BTS-3.3 Meg. | Or.-Or.-Grn. Output Grid |
| 30 | 22Ω | ½ | C-9B1-42 | BW-½-33 | Red-Red-Blk. Rectifier Ballast |
| 31 | 5452Ω | 14 | 130343 | DHA-750 | Line Dropping-See Note 1 |
| 32 | 2200Ω | ½ | C-9B1-66 | BTS-2200 | Red-Red-Red Filter |
| 33 | 19752 | 6 | 130344 | AB-2000 | Filament String |

Note 1 - Set slider at 5502 from one end.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: TRUETONE PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 34 | 9800Ω | 3.9Ω | 430Ω | .4Ω | 1061190 | A-3879# | T22847# | | #Drill one new mounting hole. |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA TRUETONE PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 35 | FIELD / PM | VC IMP. / 3.2Ω | 114241B | ST-107‡ Mod. P5-V | | ‡Fabricate new mounting bracket. |
| 36 | CONE DIA. | VC DIA. | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

## R F COILS

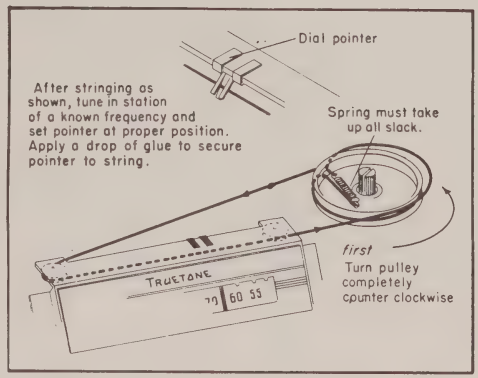
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA TRUETONE PART No. | REPLACEMENT DATA MEISSNER PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 37 | Loop Ant. | .1Ω | 1.3Ω | B-13E-10154 | | |
| 38 | Osc. Coil | 5Ω | 9.5Ω | A-13D-10239 | 14-1040 | |
| 39 | Input IF | 27Ω | 26Ω | 108201 | 16-6658 | |
| 40 | Output IF | 32Ω | 32Ω | 108200 | 16-6660 | |

## DIAL LIGHT

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA TRUETONE PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 41 | Bayonet | 6-8 | .15 | brown | 107249 | | Type 47 |

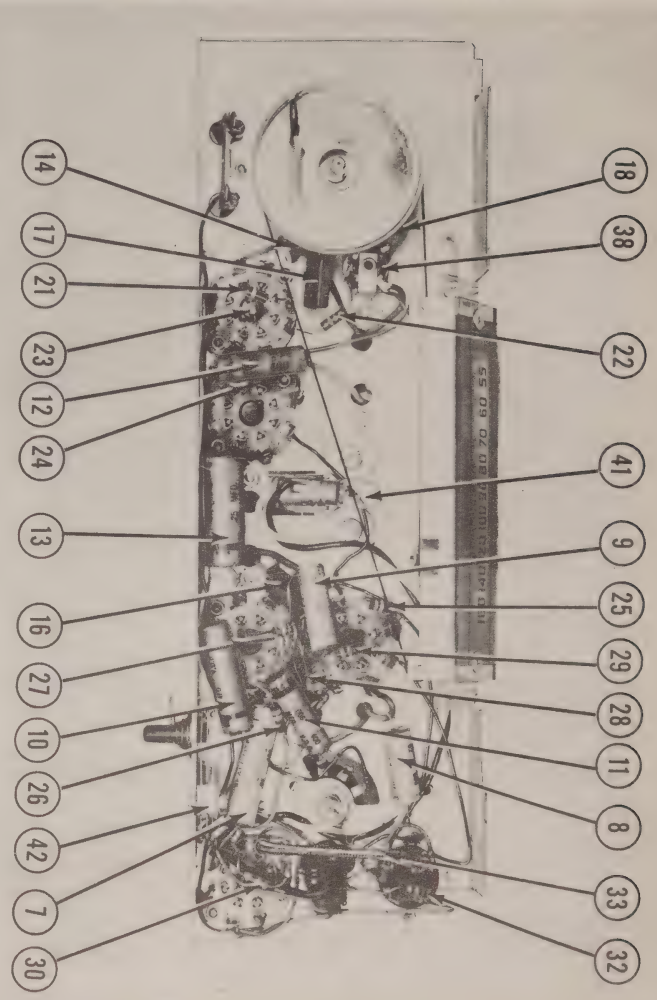
## MISCELLANEOUS

| ITEM No. | PART NAME | TRUETONE PART No. | NOTES |
|---|---|---|---|
| 42 | Switch | A-20F-10247 | Line-Battery |
| 43 | Tuning Cap. | B-8A-10246 | 2 Gang Variable Cap. |
| | Dial Pointer | 112922 | |
| | Dial Scale | B-6L-10244 | |
| | Knob | 128648-8 | Tuning |
| | " | 128647-8 | Volume |

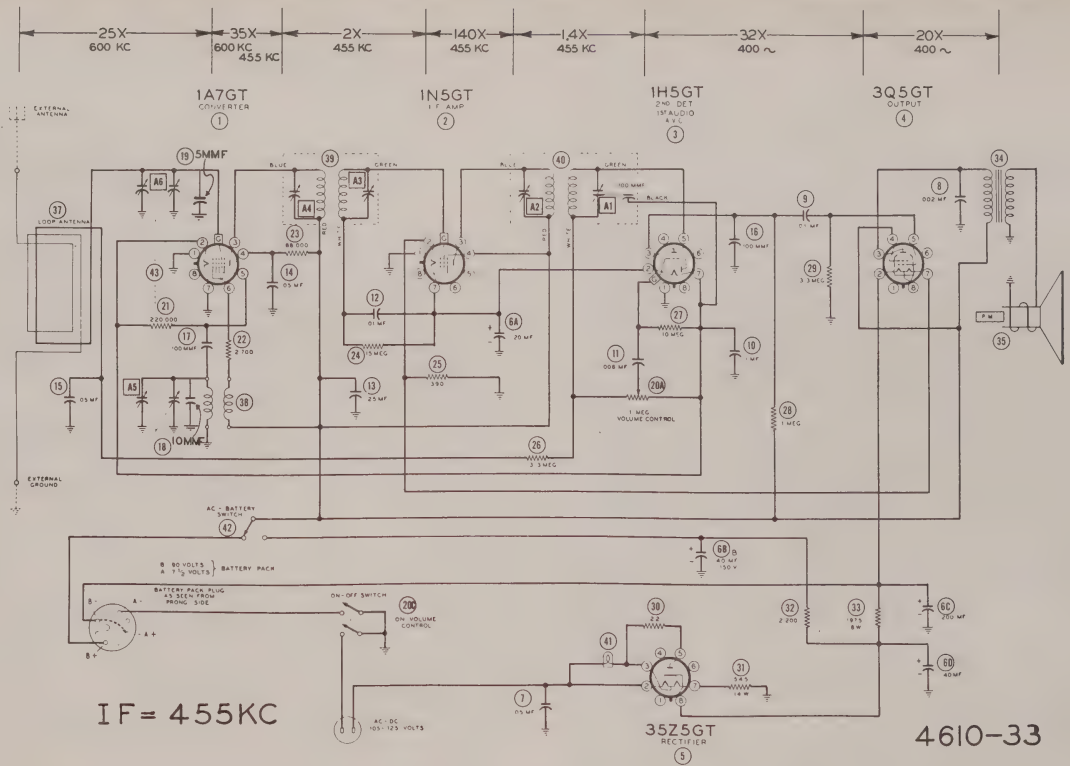

Dial pointer
After stringing as shown, tune in station of a known frequency and set pointer at proper position. Apply a drop of glue to secure pointer to string.
Spring must take up all slack.
first
Turn pulley completely counter clockwise
TRUETONE
60 55

***Replacement of Dial Pointer Drive Cord***

# CHASSIS—BOTTOM VIEW




TRUETONE MODEL D3619




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0V | 14VDC | 84VDC | 37VDC | 5V DC | 80VDC | 0V | 84VDC | 0V |
| 2 | 1N5GT | 0V | 4VDC | 84VDC | 84VDC | 0V | 0V | 27VDC | 0V | 0V |
| 3 | 1H5GT | 0V | 27VDC | 55VDC | 0V | 3VDC | 0V | 14VDC | 0V | 0V |
| 4 | 3Q5GT | 0V | 66VDC | 82VDC | 84VDC | 0V | 0V | 4VDC | 54VDC | |
| 5 | 35Z5GT | 0V | 117VAC | 112VAC | 112VDC | 111VAC | 0V | 87VAC | 112VDC | |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1A7GT | 0Ω | * | 1800Ω | 70KΩ | 235KΩ | 4.5KΩ | * | 1800Ω | 4.5MEG. |
| 2 | 1N5GT | 0Ω | * | 1800Ω | 1800Ω | INF. | INF. | * | 1.5MEG. | 1.5MEG. |
| 3 | 1H5GT | 0Ω | * | 1MEG. | 10 MEG. | 925KΩ | 4.5 MEG. | * | INF. | 10 MEG. |
| 4 | 3Q5GT | 0Ω | * | 4.6KΩ | 4.2KΩ | 3.5MEG. | INF. | * | * | |
| 5 | 35Z5GT | 0Ω | 540Ω | 537Ω | 1800Ω | INF. | 560Ω | 510Ω | 1800Ω | |

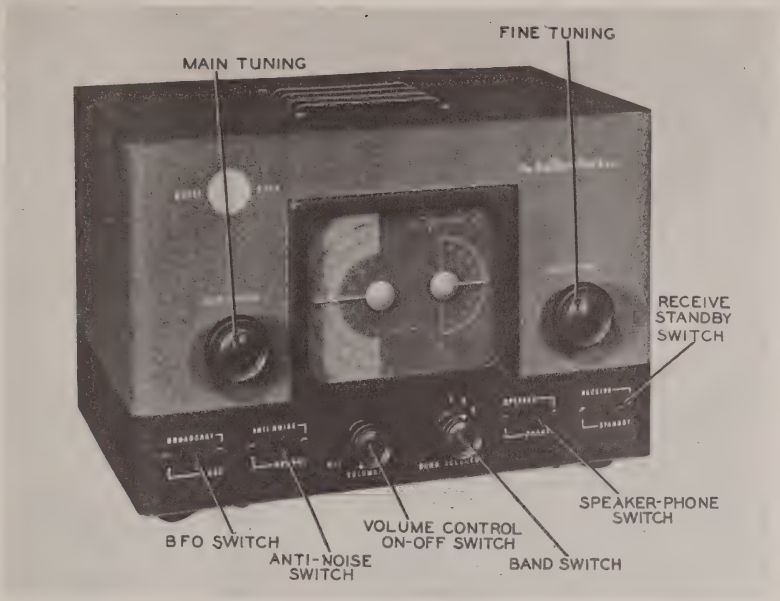
NOTE-VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is grounded.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.




HALLICRAFTERS MODEL S-41G

| | |
|---|---|
| TRADE NAME | Hallicrafters, Models S-41G, S-41W |
| MANUFACTURER | The Hallicrafters Co., 2611 S. Indiana Ave., Chicago, Ill. |
| TYPE SET | AC-DC Operated 3-Band Superheterodyne Communications Receiver |
| TUBES (SIX) | Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 12SQ7GT BFO-ANL, 35L6GT Power Output, 35Z5GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC-DC — RATING .250 Amp. @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 550-2100KC. — SHORT WAVE 2.1-7.7 MC, 7.7-30.0 MC |

**ALIGNMENT INSTRUCTIONS**

To set pointer, turn variable fully closed and set pointer at the extreme low freq. end of the dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Keep bandspread pointer at "0" while making all adjustments. Have BFO switch "on" only while adjusting A5. Use insulated alignment screwdriver for adjusting.

| DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| Direct. | High side to pin #8 of 6SA7. Low side to chassis. | 455KC | Band 1 | High freq. end. | Across voice coil | A1,A2, A3,A4. | Adjust for maximum output If isolation trans. is not used use .001 MFD. capacitor as dummy Ant. to reduce hum modulation. |
| Direct. | " | " | " | " | " | A5 | Adjust for zero beat. |
| 330Ω | High side to Ant. terminal. Low side to ground terminal. | 600KC | " | 600KC | " | A6 | Adjust for maximum output. |
| 330Ω | " | 1800KC | " | 1800KC | " | A7 | " |
| 330Ω | " | " | " | Tune for maximum output. | " | A8 | " |
| 330Ω | " | 2.4MC | Band 2 | 2.4MC | " | A9 | " |
| 330Ω | " | 7.0MC | " | 7.0MC | " | A10 | " |
| 330Ω | " | " | " | Tune for maximum output. | " | A11 | Rock variable and adjust for maximum output. |
| 330Ω | " | 28.0MC | Band 3 | 28.0MC | " | A12 | Adjust for maximum output. |
| 330Ω | " | 28.0MC | " | Tune for maximum output. | " | A13 | Rock variable and adjust for maximum output. |

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: HALLICRAFTERS PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | Converter | 12SA7 | 12SA7 | 8R | |
| 2 | IF Amp. | 12SK7 | 12SK7 | 8N | |
| 3 | Det.-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| 4 | BFO-A.N.L. | 12SQ7GT | 12SQ7GT | 8Q | |
| 5 | Power Output | 35L6GT | 35L6GT | 7AC | |
| 6 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: HALLICRAFTERS PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 7A | 40 | 150 | 45B087 | DSB-403020-150 | EL-443 | PRS150-40-30/25-20 | EZ43315C | | Filter - Red |
| B | 30 | 150 | | | | 125-20 | | | " - Yellow |
| C | 30 | 150 | | | | PRS150-30 | | | " - " |
| D | 20 | 25 | | M-25-25 | | | | | Cath. Bypass - Blue |
| 8 | .02 | 400 | | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Line Filter |
| 9 | .25 | 200 | | S-4-25 | TC-2 | 484-.25 | DT4P25 | TP430 | Cabinet Isolation |
| 10 | .02 | 600 | | S-6-02 | TC-12 | 684-02 | DT4S2 | TP412 | Output Plate Bypass |
| 11 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Audio Coupling |
| 12 | .005 | 600 | | S-6-005 | TC-25 | 684-005 | DT6D5 | TP408 | " " |
| 13 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | IF Cath. Bypass |
| 14 | .02 | 400 | | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | AVC Filter |
| 15 | .25 | 200 | | S-4-25 | TC-2 | 484-.25 | DT4P25 | TP430 | RF Bypass Pwr. Supp. |
| 16 | .05 | 200 | | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | RF Screen Bypass |
| 17 | .01 | 400 | | S-4-01 | TC-11 | 484-01 | DT4S1 | TP421 | Ext. Ground Isolation |
| 18 | 250 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | IF Bypass Diode |
| 19 | 200 | 500 | | M0.5-32 | 1FM-32 | 1468-0002 | 5W5T2 | MC237 | BF Osc. Grid |
| 20 | 25 | | | | | | | | RF Coupling Cer. |
| 21 | 50 | 500 | | M0.5-45 | 1FM-45 | 1468-00005 | 5W5Q5 | MC225 | Osc. Grid Capacitor |
| 22 | 240 | 500 | | M0.5-325 | 1FM-325 | 1468-00025 | 5W5T25 | MC240 | Audio Plate Bypass* |
| 23 | 500 | 500 | | M0.5-35 | 1FM-35 | 1468-0005 | 5W5T5 | MC245 | Fixed Trimmer* |

*Not used in all models.

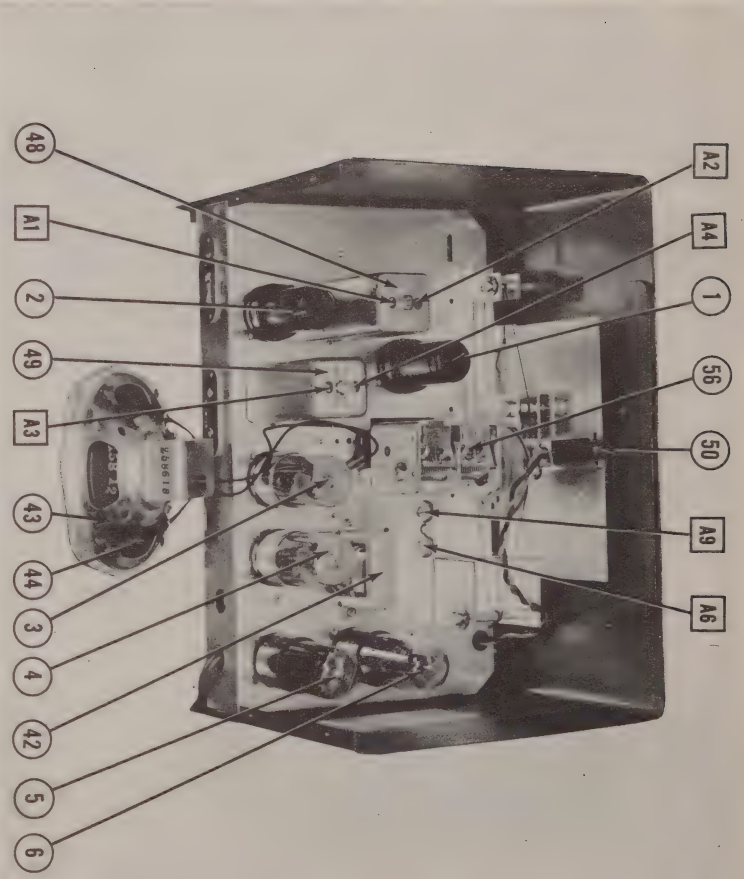
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: HALLICRAFTERS PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 24A | 500KΩ | 1 | | MR48 | D11-133 | M-58-S | Volume Control. |
| B | Shaft | | | Not Req. | A | Not Req. | Attach to 24A per instructions |
| C | Switch | | | M26 | 41 | SW-A | " " " " " |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: HALLICRAFTERS PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 25 | 100KΩ | ½ | | BTS-100K | Br.-Blk.-Yl. Converter Grid |
| 26 | 47Ω | ½ | | BW-½-47 | Yl.-Vi.-Blk. Parasitic Suppressor |
| 27 | 20KΩ | ½ | | BTS-22K | Red-Blk.-Or. Oscillator Grid |
| 28 | 300Ω | ½ | | BW-½-330 | Or.-blk.-br. IF Cathode |
| 29 | 2 Meg. | ½ | | BTS-2.2 Meg. | Red-Blk.-Grn. AVC Network |
| 30 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. RF Filter |
| 31 | 10 Meg. | ½ | | BTS-10 Meg. | Br.-Blk.-Blue 1st AF Grid |
| 32 | 240KΩ | ½ | | BTS-220K | Red-Yl.-Yl. " " Plate Load |
| 33 | 470KΩ | ½ | | BTS-470K | Yl.-Vi.-Yl. Output Grid |
| 34 | 150Ω | ½ | | BW-½-150 | Br.-Grn.-br. " Cathode |
| 35 | 15Ω | ½ | | BW-½-15 | Br.-Grn.-Blk. Head Phone Shunt |
| 36 | 470Ω | ½ | | BTS-470 | Yl.-Vi.-br. BFO Plate Load |
| 37 | 47KΩ | ½ | | BTS-47K | Yl.-Vi.-Or. " Grid |
| 38 | 390Ω | ½ | | BW-½-390 | Or.-White-Br. Pilot Light Shunt |
| 39 | 27Ω | ½ | | BW-½-27 | Red-Vi.-Blk. Surge Limiter |
| 40 | 750Ω | ½ | | BTS-680 | Vi.-Grn.-br. Filter |
| 41 | 1000Ω | ½ | | BTS-1000 | Br.-Blk.-Red " |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | HALLI-CRAFTERS PART No. | STANCOR PART No. | THORDAR'N PART No. | | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| 42 | 2200Ω | 3.3Ω | 160Ω | .5Ω | Part of 85C033 | A-3876 | T22S45 | | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | HALLICRAFTERS PART No. | JENSEN PART No. | | |
| 43 | FIELD | VC IMP. | 85C033 | ST-105 Mod. P5-X | | |
| | PM | 3.3Ω | | | | |
| 44 | CONE DIA. | VC DIA. | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |
| | 4½" | ½" | | | | |

## R F COILS

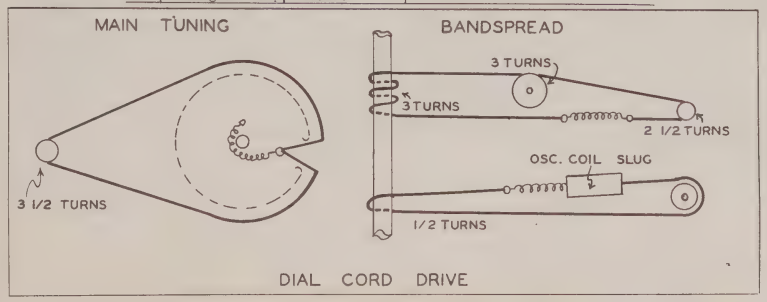
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | HALLI-CRAFTERS PART No. | MEISSNER PART No. | |
| 45A | Ant. Coil BC | 28Ω | 3.5Ω | | | Items 45A, 45B, 45C wound on same form |
| 45B | " " Band 2 | 1Ω | .5Ω | | | |
| 45C | Ant. Coil Band 3 | 1Ω | 0Ω | | | |
| 46A | Osc. Coil BC | 2Ω | | | | Items 46A, 46B, 46C wound on same form |
| 46B | " " B2 | .6Ω | | | | |
| 46C | " " B3 | 0Ω | | | | |
| 47 | BFO Coil | 5Ω | | | | |
| 48 | Input IF | 24Ω | 23Ω | E50-183 | 16-6658 | |
| 49 | Output IF | 21Ω | 21.5Ω | G50C184 | 16-6660 | |

## DIAL LIGHT

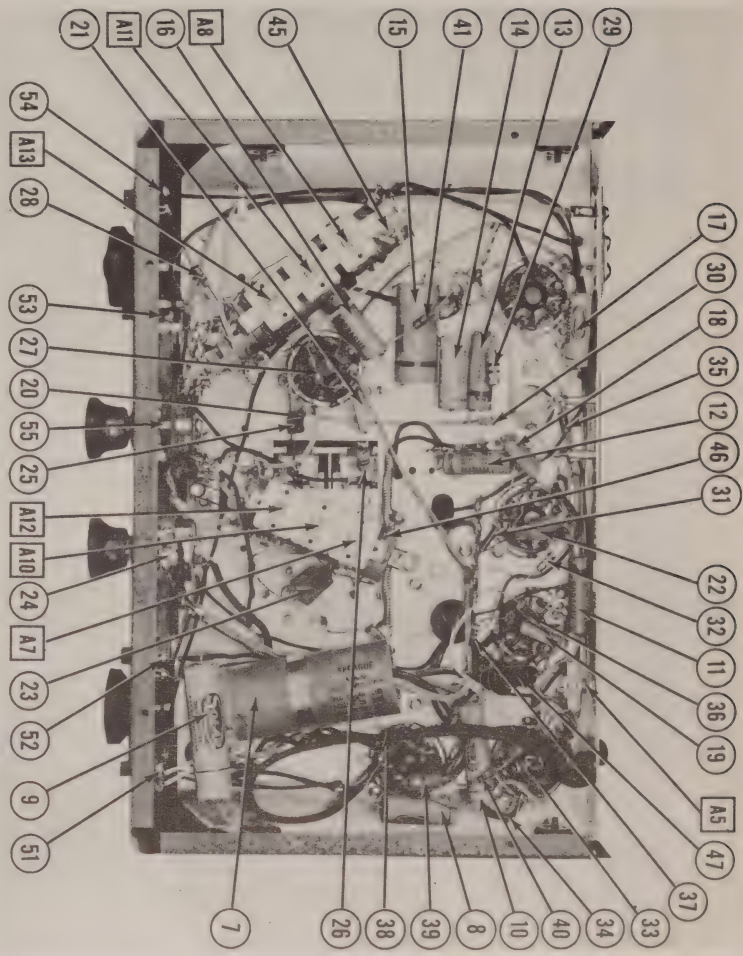
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | HALLICRAFTERS PART No. | | |
| 50 | Bayonet | 6-8 | 0.15 | Brown | | | Type 47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | HALLICRAFTERS PART No. | NOTES |
|---|---|---|---|
| 51 | BFO Switch | | |
| 52 | Anti-Noise SW. | | |
| 53 | Spkr.-Phones SW. | | |
| 54 | Stand-by SW | | |
| 55 | Band Switch | | |
| 56 | 2-Gang Var. Cap. | 48C161 | |

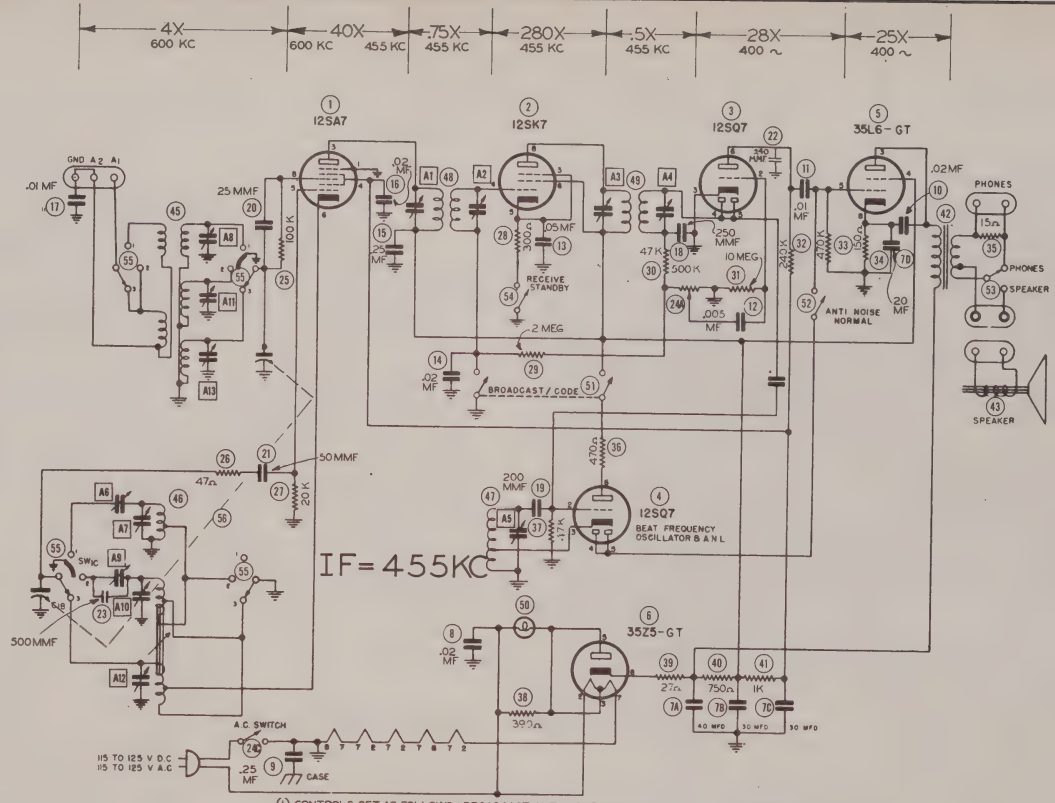



## CHASSIS—BOTTOM VIEW






HALLICRAFTERS MODELS S-41D, S-41W




(1) CONTROLS SET AS FOLLOWS : BROADCAST, ANTI-NOISE, BAND SWITCH ON NO.1, SPEAKER AND RECEIVE.
(2) READINGS ON BFO TUBE TAKEN WITH SWITCH IN CODE POSITION.

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 0V. | 24 V.AC | 97 V.DC | 87 V.DC | -3V.DC | 0V. | 111 V.AC | -.45V.DC |
| 2 | 12SK7 | 0V. | 36 V.AC | 3.2V.DC | 0V. | 3.2 V.DC | 97 V.DC | 24 V.AC | 97 V.DC |
| 3 | 12SQ7GT | 0V. | -.5V.DC | 0V. | -.5 V.DC | -.5 V.DC | 64 V.DC | 111 V.AC | 0V. |
| 4 | 12SQ7GT | 0V. | 1 V.DC | 0V. | 1 V.DC | 1 V.DC | 95 V.DC | 36 V.AC | 46.5 V.AC |
| 5 | 35L6GT | 0V. | 46.5 V.AC | 107 V.DC | 97 V.DC | 0V. | 0V. | 86 V.AC | 5.8 V.DC |
| 6 | 35Z5GT | 0V. | 117 V.AC | 113 V.AC | 0V. | 113 V.AC | 113 V.DC | 86 V.AC | 116 V.DC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SA7 | 0Ω | 2.1Ω | 30KΩ | 30KΩ | 21KΩ | .5Ω | 1.1Ω | 114KΩ |
| 2 | 12SK7 | 0Ω | 3.1Ω | 300Ω | 2.4MEG. | 300Ω | 30KΩ | 2.1Ω | 30KΩ |
| 3 | 12SQ7GT | 0Ω | 10 MEG. | 0Ω | 410KΩ | 410KΩ | 270KΩ | 1.1Ω | 0Ω |
| 4 | 12SQ7GT | 0Ω | 45KΩ | 1.5Ω | 460KΩ | 460KΩ | 30KΩ | 3.1Ω | 4.1Ω |
| 5 | 35L6GT | 0Ω | 4.1Ω | 30KΩ | 30KΩ | 460KΩ | INF. | 72Ω | 120Ω |
| 6 | 35Z5GT | INF. | 97Ω | 94Ω | INF. | 94Ω | 30KΩ | 72Ω | 30KΩ |

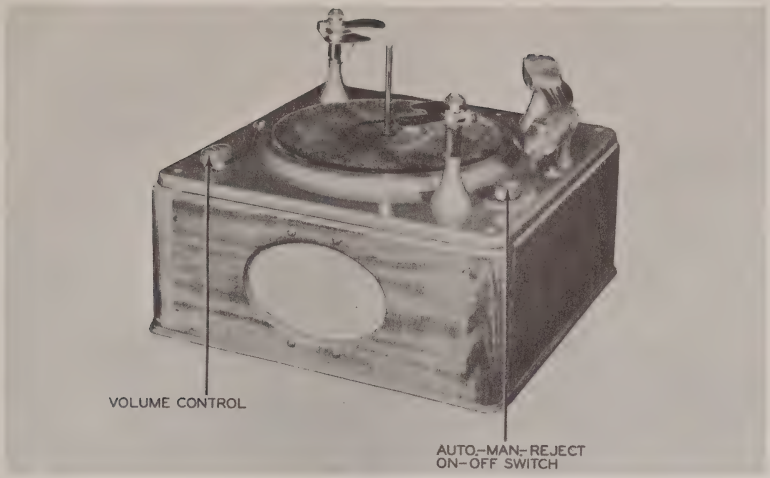
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-19

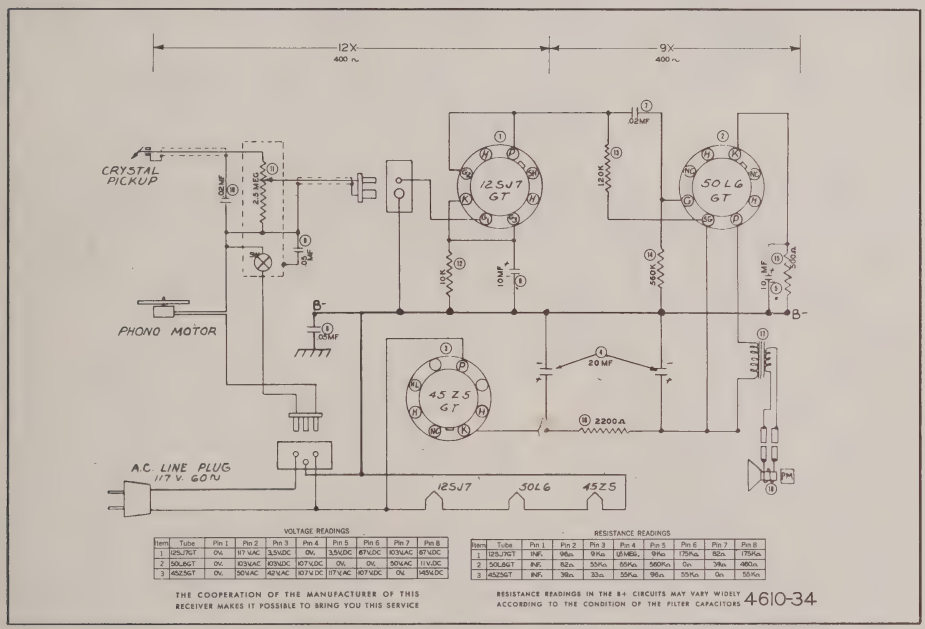
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




V-M MODEL 1001-A

| | |
|---|---|
| **TRADE NAME** | V-M Model 1001-A |
| **MANUFACTURER** | V-M Corporation, Benton Harbor, Michigan |
| **TYPE SET** | Automatic Record Changer and Amplifier with Speaker |
| **TUBES** (THREE) | Types 12SJ7GT AF Amp., 50L6GT Power Output, 45Z5GT Rectifier |
| POWER SUPPLY | 117 Volts AC RATING .180 Amp. @ 117 Volts AC |




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SJ7GT | 0V. | 117 VAC | 3.5VDC | 0V. | 3.5VDC | 67 VDC | 103VAC | 67 VDC |
| 2 | 50L6GT | 0V. | 103VAC | 103VDC | 107 VDC | 0V. | 0V. | 50 VAC | 11 V.DC |
| 3 | 45Z5GT | 0V. | 50 VAC | 42VAC | 107 V DC | 117 V AC | 107 VDC | 0V. | 145VDC |

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12SJ7GT | INF. | 98Ω | 97Ω | 1.1MEG. | 97Ω | 175KΩ | 82Ω | 175KΩ |
| 2 | 50L6GT | INF. | 82Ω | 55KΩ | 65KΩ | 560KΩ | 0Ω | 39Ω | 480Ω |
| 3 | 45Z5GT | INF. | 39Ω | 33Ω | 55KΩ | 98Ω | 55KΩ | 0Ω | 55KΩ |

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4610-34

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurement.

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# PARTS LIST AND DESCRIPTIONS

## TUBES

| ITEM No. | USE | REPLACEMENT DATA: V-M Corp. PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| 1 | AF Amp. | 12SJ7GT | 12SJ7GT | 8N | |
| 2 | Power Output | 50L6GT | 50L6GT | 7AC | |
| 3 | Rectifier | 45Z5GT | 45Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: V-M Corp. PART No. | SOLAR PART No. | SPRAGUE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 4A | 20 | 150 | 15A0068 | M-2X20-150 | TA-220 | PRSA150-20-20 | BRD2215 | 2N509 | Filter |
| B | 20 | 150 | | | | | | | |
| 5 | 10 | 150 | 15A0069 | M-10-150 | UT-121 | PRS150-10 | BR1215 | TC42 | Cath. Bypass |
| 6 | 10 | 150 | 15A0069 | M-10-150 | UT-121 | PRS150-10 | BR1215 | TC42 | " " |
| 7 | .02 | 400 | 15A0060 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Audio Coupling |
| 8 | .05 | 400 | 15A0058 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Line Isolation |
| 9 | .05 | 400 | 15A0058 | S-4-05 | TC-15 | 484-05 | DT4S5 | TP426 | Vol. Cont. Shield Isc. |
| 10 | .02 | 400 | 15A0060 | S-4-02 | TC-12 | 484-02 | DT4S2 | TP423 | Phono Shield Isolation |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: V-M Corp. PART No. | MALLORY PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|
| 11A | 2 Meg. | 1 | | MR55 | D1S-139 | M-637 | Volume Control |
| B | Shaft | | | Not Req. | " | Not Req. | Attach to 11A per instructions |
| 11A | 2.5 Meg. | 1 | 11A0525 | MR55 | D1S-139 | M-637 | Volume Control See Note |
| B | Shaft | | Not Req. | Not Req. | " | Not Req. | Attach to 11A per instructions |
| C | Switch | | " " | 426 | 41 | SW-A | " " " " |

Note-Use this control when AC switch is on volume control.

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: V-M Corp. PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| 12 | 10KΩ | 1 | 11A0057 | BTA-10K | Br.-Blk.-Or. AF Cathode |
| 13 | 100KΩ | 1/3 | " | BTS-100K | Br.-Blk.-Yl. AF Plate Load |
| 14 | 560KΩ | 1/3 | 11A0036 | BTS-560K | Grn.-Gray-Yl. Output Grid |
| 15 | 470Ω | 1/2 | | BTS-470 | Yl.-Vi.-Br. Output Cathode |
| 16 | 2200Ω | 1 | | BTA-2200 | Red-Red-Red Filter |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: V-M Corp. PART No. | STANCOR PART No. | THORDAR'N PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 17 | 14000Ω | 3.3Ω | 110Ω | .4Ω | 13A0017 | A-3676* | T-22045 | | * Drill new mounting holes |

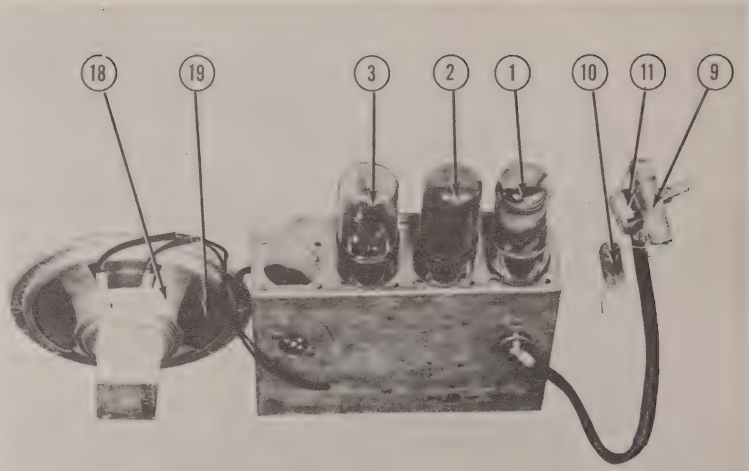
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA: V-M Corp. PART No. | JENSEN PART No. | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| 18 | FIELD P.P. | VC IMP. 3.3" | 14B0066 | ST-107 Mod. P5-V | | |
| 19 | CONE DIA. 4-3/4" | VC DIA. 1/2" | NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. | | | |

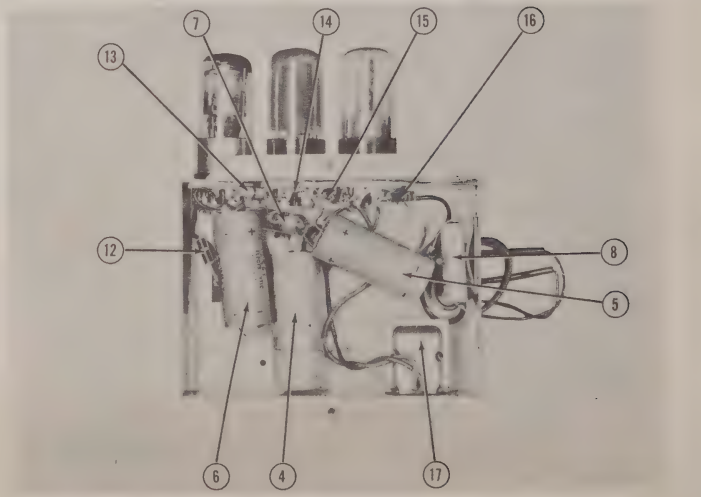
DISASSEMBLY INSTRUCTIONS

1. Remove the two machine screws and washers from the turntable. Tilt turntable upward.
2. Disconnect the phono-motor plug from chassis.
3. Disconnect the phono-pickup plug from chassis.
4. Remove turntable from cabinet.
5. Remove two machine screws holding chassis to cabinet.
6. Remove three hex nuts and washers from speaker mounting posts.
7. Remove chassis and speaker from cabinet.

## CHASSIS—TOP VIEW




## CHASSIS—BOTTOM VIEW



GENERAL INSTRUMENT
MODEL 205

GENERAL INSTRUMENT
MODEL 205

# GENERAL INSTRUMENT MODEL 205

# GENERAL

Manufacturer: General Instrument & Appliance Co., 829 Newark Ave., Elizabeth, New Jersey. The model 205 is an automatic, cam-type changer, with single button control and eccentric spindle selection. It is designed to operate from a supply of 105-125 volts AC, at 60 cycles. It will play and automatically change twelve 10-inch or ten 12-inch records, not intermixed, at a single loading. The last record will be repeated until the changer is turned off.

**This changer has been used in postwar models up to the present time by the following manufacturers:**

| | |
|---|---|
| Belmont Radio Corp. | 5921 West Dickens Avenue, Chicago, Illinois |
| Bendix Radio Div. of Bendix Aviation Corp. | Baltimore, Maryland |
| Bogen, David & Co., Inc. | 663 Broadway, New York, New York |
| Sears, Roebuck & Co. | 925 South Homan Avenue, Chicago, Illinois |
| Crosley Corporation | 1329 Arlington Street, Cincinnati, Ohio |
| Electronic Corp. of America | 170 53rd Street, Brooklyn, New York |
| Emerson Radio & Phono. Corp. | 111 8th Avenue, New York, New York |
| Fada Radio & Elec. Co., Inc. | 30-20 Thomson Avenue, Long Island City, New York |
| General Electric Co. | 1285 Boston Avenue, Bridgeport, Connecticut |
| Hallicrafters Co. | 2611 South Indiana Avenue, Chicago, Illinois |
| Olympic Radio & Tel. Inc. | 3101-19 38th Avenue, Long Island City, New York |
| Hoffman Radio Corp. | 3761 South Hill Street, Los Angeles, California |
| Ketay Mfg. Co. | 18 West 20th Street, New York, New York |
| Noblitt-Sparks Industries, Inc. | 13th Street & Big Four R. R., Columbus, Indiana |
| Sentinel Radio Corp. | 2100 Dempster Street, Evanston, Illinois |
| Sonora Radio & Tel. Corp. | 325 North Hoyne Avenue, Chicago, Illinois |
| Stewart-Warner Corp. | 1826 Diversey Parkway, Chicago, Illinois |
| Teletone Radio Co. | 609 West 51st Street, New York, New York |
| Wells-Gardner & Co. | 2701 North Kildare Street, Chicago, Illinois |
| Westinghouse Elec. Corp. | Sunbury, Pennsylvania |
| Trav-Ler Karenola Radio & Tel. Corp. | 571 West Jackson Boulevard, Chicago, Illinois |

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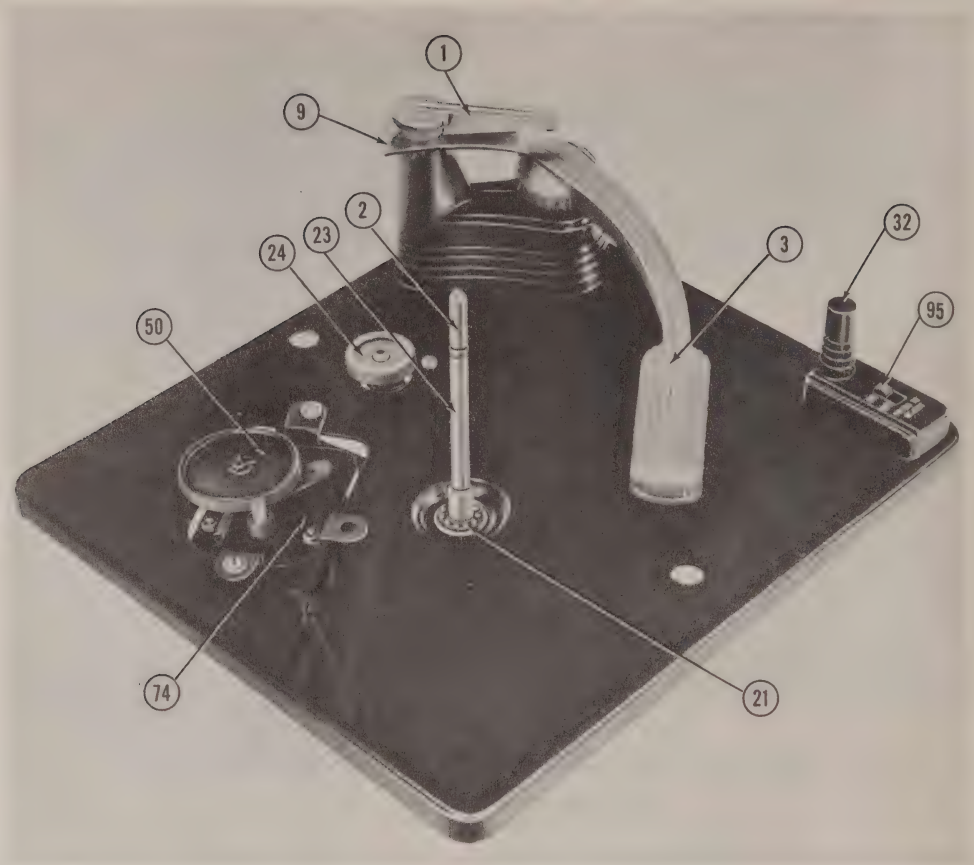


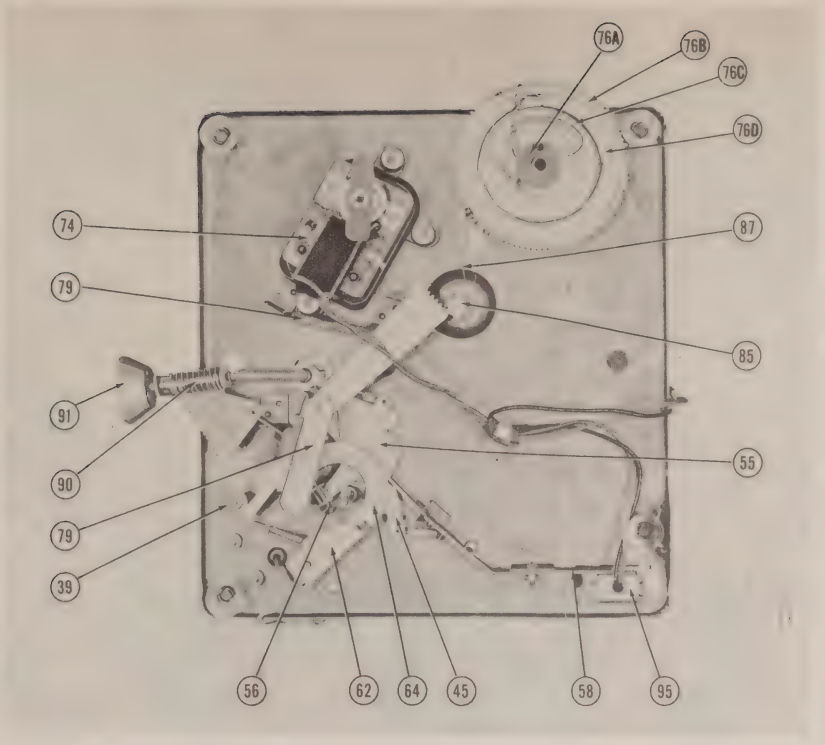

TOP VIEW

## MANUAL OPERATION

1. Turn the record support so that its long, curved surface faces the spindle (12 inch position).
2. Turn the record hold-down finger out of the way.
3. Twist the top of the spindle so that it aligns with the lower part to form a smooth spindle.
4. Place the record on the turntable, turn the motor on and place the pickup on the record manually.
5. When the record is finished, press the switch button for reject and allow the changer to go through its cycle and return the pickup to the record. Lift the pickup from the record and return it to the rest position. Then turn the changer off.

## AUTOMATIC OPERATION

1. Twist the top of the spindle off center so that a step appears.
2. For 10-inch records, turn the record support so that the narrow edge faces the spindle. For 12-inch operation, turn the support so the wide edge faces the spindle. Leave the record support finger out of the way.
3. Place the records on the spindle so that they rest on the record support and on the step on the spindle. Swing the record support finger so that it rests on the top record.
4. Start operation by moving the switch to the "on" position, then press down on the switch button to start the change cyle.
5. To stop the phonograph, remove any records remaining on the record support post. Then press the button as for reject and allow the changer to go through cycle and return the pickup to the record. Then lift the pickup off the record, place it on the rest, and move the button to the "off" position.




BOTTOM VIEW—PARTIALLY DISASSEMBLED

## THE CHANGE CYCLE

A single revolution of the main cam (76) results in complete cycling of the changer. This includes selecting record from bottom of stack and moving pickup to the playing position. At the end of the revolution the automatic trip cam (76A) engages with the block on the trip lever (55) and pulls the carrier lever (45) back to its original position so that the drive wheel (24) is moved away from the turntable rim.

### REJECT

To start operation of the changer, or to reject a record being played, the "ON-OFF-REJECT" button should be depressed. This movement pivots the trip bar (58) so that its slanted end pushes against the trip lever (55), which is pivoted on the carrier lever, and thus moves the drive wheel (24) against the turntable rim. The rotation of the drive wheel (24) is transmitted to the worm gear by means of the flexible drive shaft (89). The worm gear drives the main cam, which controls all the motion of the change cycle.

### RECORD FEED

The lower side of the main cam (76) controls record selection. Motion of the feed cam roller (78) about the cam results in a backward and forward movement of the feed sector lever (79). This turns the record feed pinion (83), causing the eccentric (13) to rotate first to the proper position for record selection then to return to its normal position, allowing the record to drop over the spindle (23).

### PICKUP ARM MOVEMENT

The upper side of the main cam (76) controls pickup arm motion. As the cam rotates, the lift pin (5) rides up on the inclined portion of its track (76B). This pushes the pickup arm up away from the record. Direction of the arm is controlled by sweep-lever pinion (62A). This pinion is driven by the portion of the cam indicated as (76C). The sweep lever (62) is attached to the pickup arm (3) by means of a clamp (62B) which fits around the pickup pivot arm sleeve (15). Stop lever (64) determines the set-down point for 10-inch or 12-inch records. At the end of the change cycle a boss (76D) on the main cam moves this lever out of the way so the arm may move across the record.

### POSITIVE TRIP

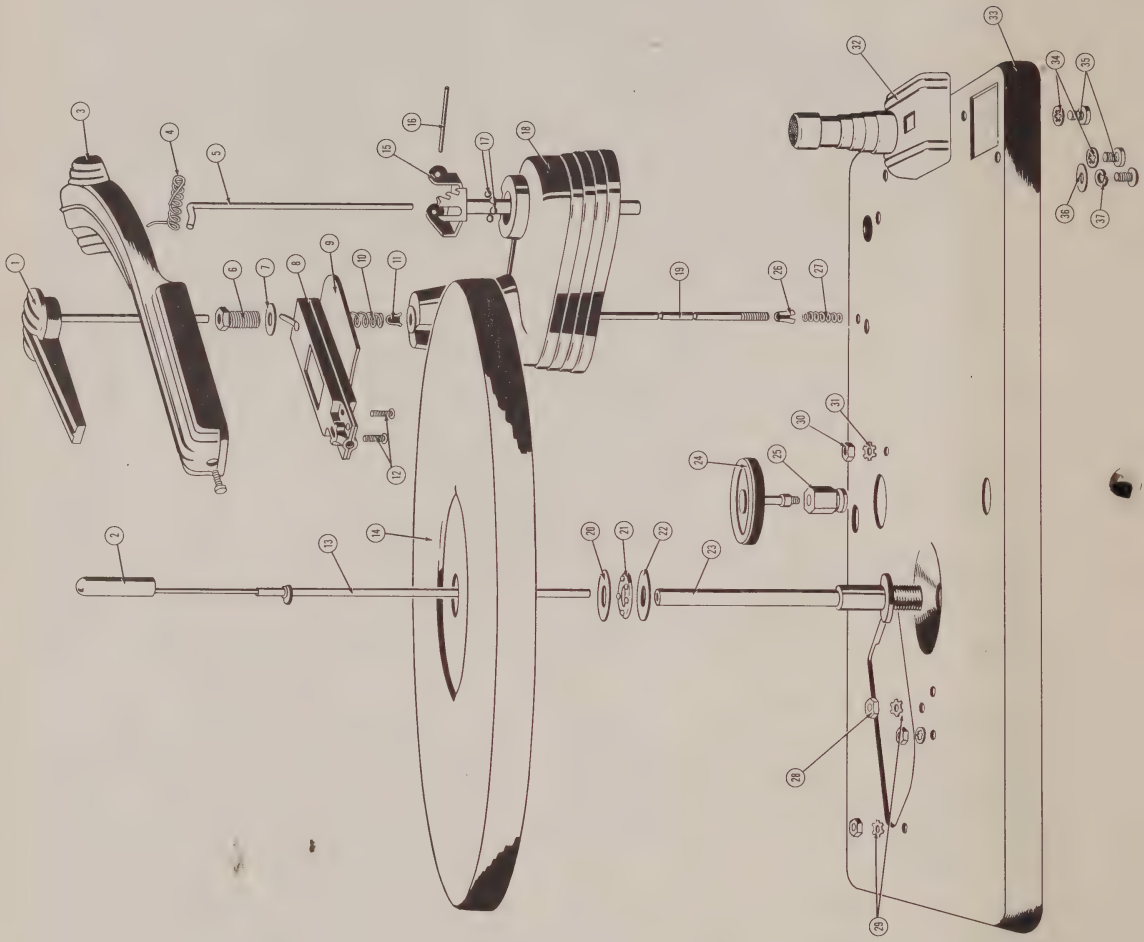
As the pickup arm approaches the spindle, the sweep lever (62) hits the positive trip screw (56) which is mounted on the trip lever (55). This re-engages the drive wheel with the turntable rim and starts a new cycle.

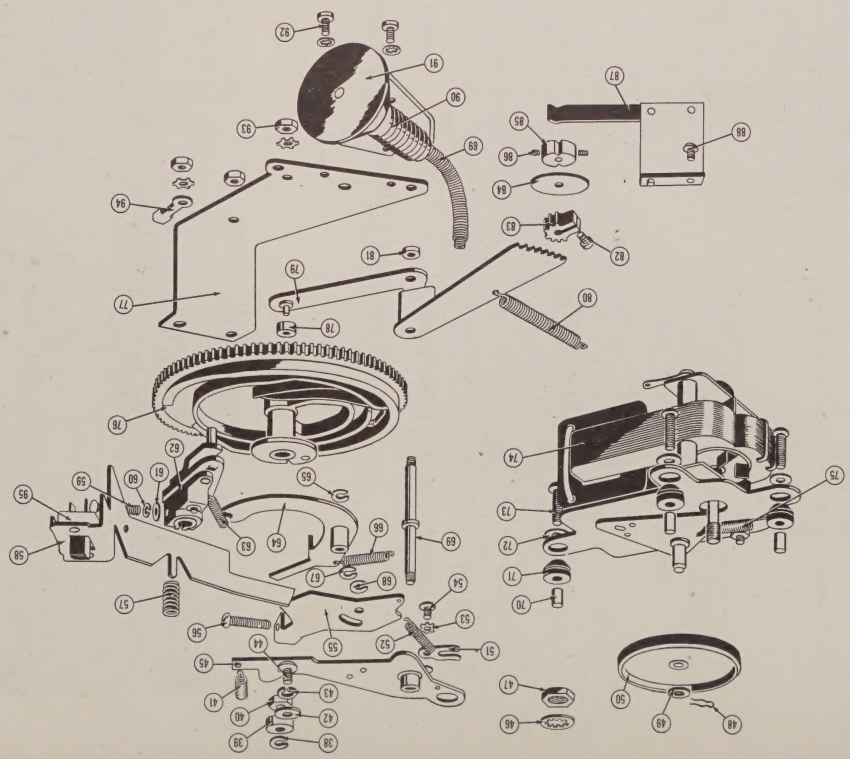
### DETERMINATION OF SET-DOWN POINT

Adjusting the record support (9) to the 10-inch or 12-inch position lowers the selector rod (19) a definite amount. This determines whether the stop lever (64) hits the rod or the large nut (39). In turn, this determines which part of the stop lever will engage the sweep lever to stop its movement toward the spindle. At the end of the change cycle the stop lever is displaced by a boss on the main cam to allow the pickup arm to feed in normally. Operation of the size change stop depends on proper positioning of the record support. The support must always be turned to full stop.

### PRECAUTIONS

1. Be sure records are not warped and are standard size. Warped, odd-size, or home recordings must be played manually.
2. Do not use force to start or stop any part of the mechanism.
3. Do not store records on the support shelf or the turntable when not in use.
4. Do not allow oil or grease to come into contact with any of the rubber drive surfaces.

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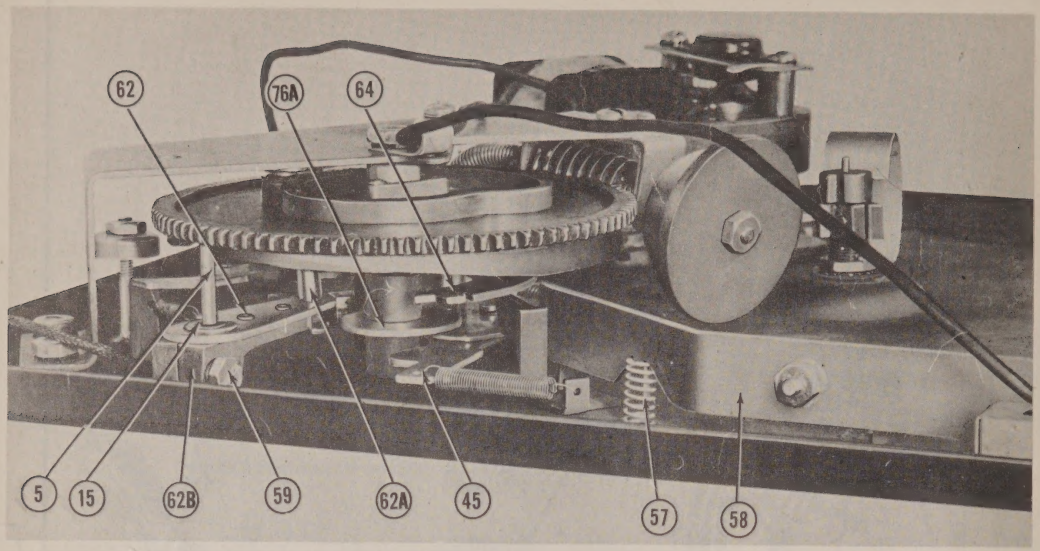



REAR VIEW

## SERVICE ADJUSTMENTS

### TONE ARM SET-DOWN POINT

The point at which the needle drops on the record may be adjusted by loosening the sweep lever clamp (62B) and moving the pickup slightly with respect to the sweep lever. The needle should land approximately 1/8" in from the edge of the record.

### RECORD SUPPORT POSITION

The position of the record support is adjustable by means of two set screws located near the top of the pickup arm base (18). The set screw nearer the spindle adjusts the 10-inch position, while the 12-inch position is adjusted by the set screw on the far side of the base. These screws must be adjusted so that the records will drop evenly from both edges of the plate.

### POSITIVE TRIP

The trip point is adjusted by screw 56. Turning the screw clockwise will delay tripping, while backing out the screw will cause the changer to trip earlier.

### ALIGNMENT OF ECCENTRIC

The eccentric may be adjusted by loosening the screw in the feed pinion (83) and adjusting the eccentric so that it is aligned with the spindle. The normal relation of the feed pinion and the feed sector lever when not in cycle is such that only one tooth is engaged. The position of the eccentric is correct if it is aligned with the spindle when the changer is not in cycle.

### ALIGNMENT OF SPINDLE CAP

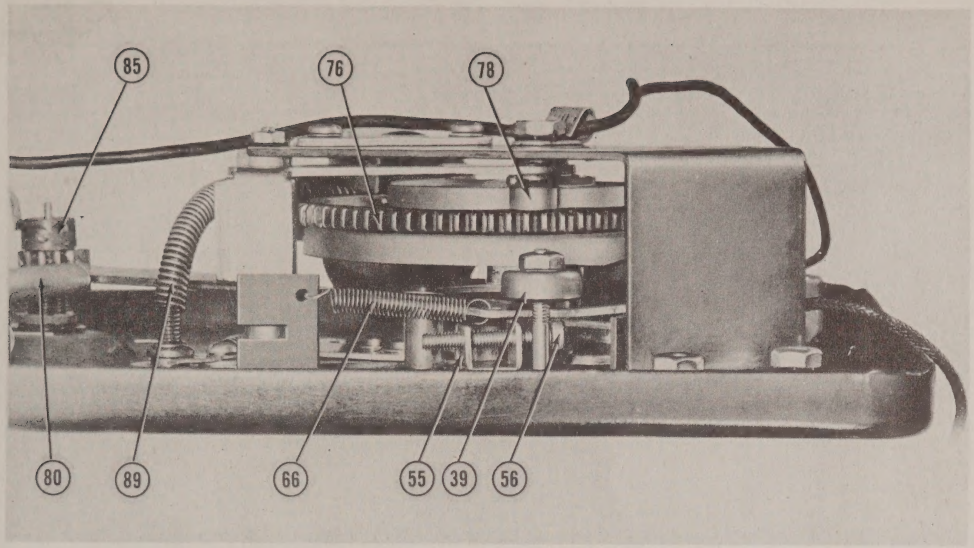
Loosen the two set screws holding the cam index (85) and rotate the cap until it is aligned with the spindle, with the index spring in the detent. Retighten the set screws.

### DRIVE WHEEL ADJUSTMENT

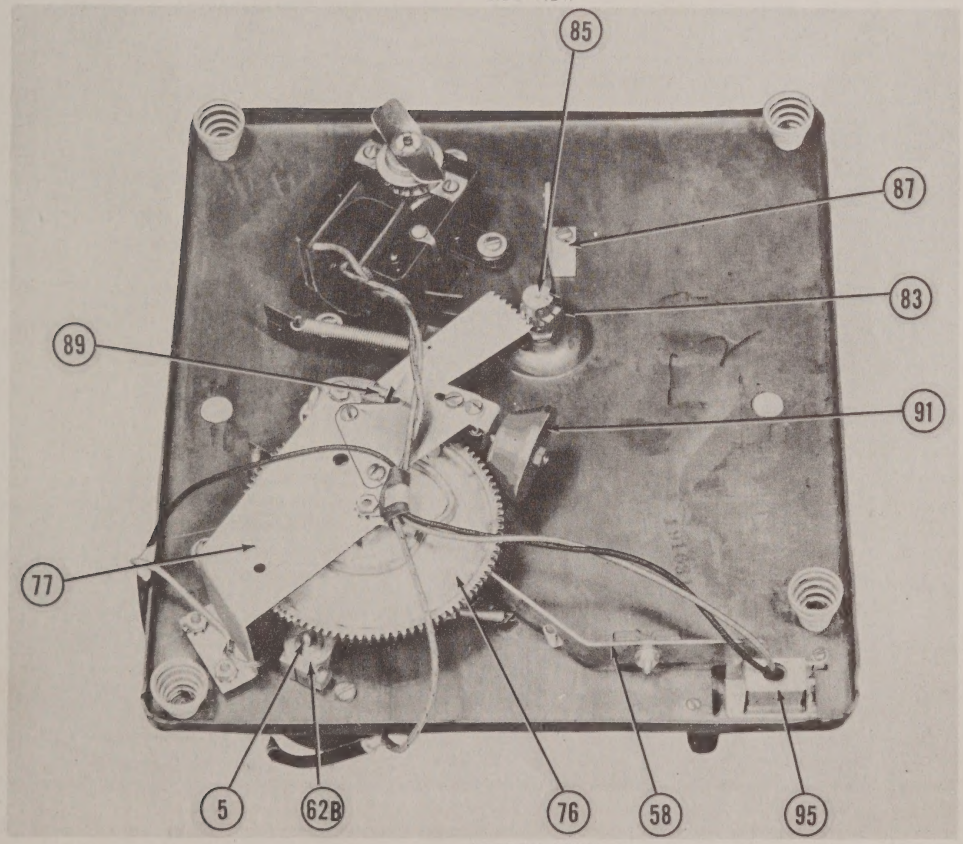
The position of the drive wheel (24) may be adjusted by rotating the eccentric bushing (25). The adjustment should be such that the drive wheel is just clear of the turntable when the changer is not in cycle.

## TROUBLES

| | |
|---|---|
| 1. Changer trips before completion of record. | (a) Turn positive trip screw (56) clockwise. |
| 2. Changer fails to trip at end of record. | (a) Turn positive trip screw (56) counterclockwise. |
| 3. Set-down point improper. | (a) Loosen screw on sweep lever clamp and reposition arm. |
| 4. Turntable speed slow. | (a) Be sure drive wheel adjustment is correct.<br>(b) Clean any grease or oil from rim of turntable or from idler wheel with carbon tetrachloride.<br>(c) Be sure idler wheel plate does not bind. |
| 5. Stalling in cycle. | (a) Clean drive wheel and turntable rim.<br>(b) Check mesh of worm gear and main cam.<br>(c) Check for bind in spindle assembly. Disassemble spindle and see that all parts are free. In reassembling allow maximum clearance of .005" between eccentric and spindle cap. Check paragraph on alignment of eccentric and alignment of spindle cap when reassembling. |
| 6. Records fail to drop. | (a) Check meshing of feed pinion (83) and feed sector lever 79 as given under paragraph on alignment of eccentric. |
| 7. Pickup height incorrect. | (a) Readjust end of lift pin (5) so that needle will play first record and still clear top record of full stack.<br>(b) Be certain pickup lead does not hit the top of the lift pin or the hinge. |




SIDE VIEW




BOTTOM VIEW

# PARTS LIST

| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | 55-72021 | Stabilizer finger |
| 2 | 21A71637 | Spindle cap assembly |
| 3 | 69A72000 | Pickup arm (with cartridge) |
| | 69A71995 | Pickup arm (without cartridge) |
| 4 | 33-71405 | Counterbalance spring |
| 5 | 12-71406 | Arm lift lever |
| 6 | ..... | Record support mounting nut |
| 7 | ..... | Washer, 5/8" O.D.—5/16" I.D., Spring |
| 8 | ..... | Pickup cartridge (order by model) |
| 9 | ..... | Record support |
| 10 | 33-71388 | Finger spring |
| 11 | 33-71183 | Spring retainer |
| 12 | ..... | Pickup cartridge mounting screws No. 4-40 x ¼" |
| 13 | 43A71646 | Eccentric assembly |
| 14 | ..... | Turntable (order by model and color) |
| 15 | ..... | Pickup hinge and support sleeve |
| 16 | ..... | Pickup mounting pin |
| 17 | 36-80656 | Steel balls (nine) |
| 18 | 21A72035 | Pickup arm base |
| 19 | 12A71510 | Selector rod |
| 20 | ..... | Washer 13/16" O.D.—⅜" I.D., turntable bearing |
| 21 | 30A72491 | Thrust bearing |
| 22 | ..... | Washer 13/16" O.D.—⅜" I.D., turntable bearing |
| 23 | 19A71536 | Spindle |
| 24 | 19A71206 | Drive wheel |
| 25 | ..... | Drive wheel eccentric bushing |
| 26 | 33-71183 | Spring retainer |
| 27 | 33-71511 | Selector rod spring |
| 28 | ..... | Mounting nut No. 6-32 |
| 29 | ..... | Lock washer |
| 30 | ..... | Mounting Nut 8-32 |
| 31 | ..... | Lock washer |
| 32 | ..... | Arm rest |
| 33 | ..... | Base plate |
| 34 | ..... | Lock washer |
| 35 | ..... | Mounting bolt No. 4-40 x 5/16" |
| 36 | ..... | Washer |
| 37 | ..... | Lock washer |
| 38 | 32-16901 | "C" washer 9/32" |
| 39 | ..... | Size selector nut |
| 40 | ..... | Lock nut No. 6-32 |
| 41 | 33-71342 | Spring, carrier lever |
| 42 | ..... | Flat washer |
| 43 | ..... | Lock washer |
| 44 | ..... | Machine screw No. 10-32 x ⅜" |
| 45 | 55A71379 | Carrier lever |
| 46 | ..... | Lock washer for mounting spindle base |
| 47 | ..... | Mounting nut ⅜" x 32 |
| 48 | ..... | Hairpin spring |
| 49 | ..... | Flat washer |
| 50 | 28A72833 | Idler wheel (use with motor with external fan) |
| | 28A72869 | Idler wheel (use with motor with internal fan) |

| Ref. No. | Part No. | Description |
|---|---|---|
| 51 | ..... | Eccentric bushing tension spring |
| 52 | 33-71173 | Trip lever spring |
| 53 | ..... | Lock washer |
| 54 | ..... | Machine screw No. 6-32 x ¼" |
| 55 | 55A71394 | Trip lever |
| 56 | ..... | Trip point adjustment screw |
| 57 | 33-71438 | Trip bar return spring |
| 58 | 41-71483 | Trip bar |
| 59 | ..... | Sweep lever clamp screw |
| 60 | ..... | Lock washer |
| 61 | ..... | Flat washer |
| 62 | 55A71400 | Sweep lever assembly |
| 63 | 33-71205 | Pull-in spring |
| 64 | 55A71513 | Stop lever |
| 65 | 32-50745 | "C" washer 5/16" |
| 66 | ..... | Stop lever spring |
| 67 | 32-50745 | "C" washer 5/16" |
| 68 | 32-50745 | "C" washer 5/16" |
| 69 | ..... | Feed sector mounting stud |
| 70 | ..... | Sleeve, motor mounting |
| 71 | ..... | Rubber grommet, motor mounting |
| 72 | ..... | Flat washer |
| 73 | ..... | Machine screw No. 6-32 x ⅝" |
| 74 | 56-72092 | Motor and lead assembly |
| 75 | 33-72841 | Spring, idler wheel (Ext. fan-type motor) |
| | 33-72879 | Spring, idler wheel (Int. fan-type motor) |
| 76 | 43A71301 | Cam assembly |
| 77 | ..... | Worm mounting bracket |
| 78 | 65-70566 | Feed sector roller |
| 79 | 27A71293 | Feed sector assembly |
| 80 | 33-71341 | Record feed spring |
| 81 | ..... | Spacer washer |
| 82 | ..... | Machine screw 6-32 x 5/16" |
| 83 | 28A71289 | Pinion assembly |
| 84 | ..... | Flat washer ⅞" O.D. x ⅛" I.D. |
| 85 | ..... | Cap index cam |
| 86 | ..... | Set screw No. 6-32 x 3/16" round point |
| 87 | 59A71305 | Index spring (shape may differ in various models) |
| 88 | ..... | Machine screw No. 6-32 x ⅜" |
| 89 | 39A71196 | Flexible drive shaft |
| 90 | 29A71377 | Worm drive |
| 91 | 29A71516 | Vibration Dampener (with drive assembly) |
| 92 | ..... | Machine screw No. 6-32 x 3/16" |
| 93 | ..... | Cam mounting nut No. 10-32 |
| 94 | ..... | Clamping lug |
| 95 | 58-71435 | "On-Off" switch |
| | 19A72912 | Spindle kit |
| | 12A72696 | Stabilizer finger rod assembly |
| | 37-72839 | Fan (for external fan-type motor) |
| | 12-72851 | Pin (for external fan-type motor) |
| | 33-72873 | Drive Pinion Spring |
| | 41A71512 | Trip bar assembly |
| | 55A71399 | Sweep lever sub-assembly |
| | 55A71176 | Clamp lever assembly |
| | 33-70582 | Mounting spring |
| | 55A71395 | Carrier-trip lever assembly |